

COMPUTERWORLD

THE VOICE OF IT MANAGEMENT • WWW.COMPUTERWORLD.COM

SEPTEMBER 1, 2003 • VOL. 37 • NO. 35 • \$5/COPY

IT Budget Boosts Seen in 2004

Security, Web services and CRM among areas of increased spending

BY THOMAS HOFFMAN

Improved corporate revenue and pent-up demand for long-delayed technology projects are expected to contribute to a 3% to 5% increase in overall IT spending next year, according to several industry researchers.

And as IT managers enter the final stages of negotiating their 2004 technology budgets

with CEOs and other business executives, initiatives such as security, Web services and CRM are expected to benefit.

However, there isn't unanimity on the likelihood of a rise in IT investments next year, judging by comments by IT professionals and industry analysts in interviews last week. For example, Gartner Inc. IDC and Alinean LLC are all forecasting small spending increases. But Meta Group Inc. said it expects IT outlays *Spending, page 39*

IBM Pushes Data Center Provisioning

Like HP and Sun, to offer software to control computing resources

BY THOMAS HOFFMAN

Looking to trump offerings from Hewlett-Packard Co. and Sun Microsystems Inc., IBM this month plans to begin rolling out a set of intelligent system-provisioning tools that can track the use of mainframes, servers and storage devices and automatically redirect data flows as needed.

IBM this week will announce an initial product that's primarily focused on redirecting Internet traffic

among different Web servers. Company officials said that tool, called Tivoli Intelligent Orchestrator and due for release late this month, will be joined later this year and in 2004 by software that can support CRM systems and other complex applications.

The overall product offering, code-named Symphony, is being designed to help IT managers take advantage of underutilized computing resources and move processing workloads off of systems that are nearing their capacity thresholds.

Frank Webb, a technology manager at insurer American International Group Inc. in Jersey City, N.J., said many IT administrators would likely be interested in such tools. But he noted that IT spending "is pretty *Symphony, page 39*

Blaster Worm Linked to Severity of Blackout

Exposure of communications flaws heightens concerns about security of the U.S. power grid

BY DAN VERTON
WASHINGTON

The W32.Blaster worm may have contributed to the cascading effect of the Aug. 14 blackout, government and industry experts revealed last week.

On the day of the blackout, Blaster degraded the performance of several communications lines linking key data centers used by utility companies to manage the power grid, the sources confirmed.

"It didn't affect the [control]

INSIDE

■ Power grid IT contract up for bid. **Page 4**

systems internally, but it most certainly affected the timeliness of the data they were receiving from other networks," said Gary Seifert, a researcher at the U.S. Department of Energy's Idaho National Engineering and Environmental Laboratory in Idaho Falls, referring to flow-control and

load-balancing data that's transmitted over public telecommunications networks. "It certainly compounded the problems" relating to the congestion of key communications links used by utilities to coordinate contingency efforts, Seifert added.

The inability of critical control data to be exchanged quickly across the grid could have hampered the operators' ability to prevent the cascading effect of the blackout, he said. Seifert stressed, however, that no one is certain at this point

Blackout, page 4

Bootleg IT projects are a fact of corporate life, a Computerworld survey shows, from the unauthorized CRM package in the marketing department to the Linux machine that comes in the back door. Savvy CIOs are learning how to cope. **Page 27**



An ERP project done "under the radar" of Emcor's IT department was a disaster, says CIO **Joseph Puglisi**.

DEALING WITH Rogue IT



Microsoft

Build a 200-server infrastructure.



Microsoft
Windows Server 2003

With 10 servers.

Introducing Microsoft Windows Server 2003. Do more with less.

You're being asked to do more. You're being asked to do it with less. Microsoft® Windows® Server 2003 is designed to help you manage these opposing forces with powerful server consolidation capabilities that increase efficiency, decrease man-hours, and lower your total cost of ownership. Download your free evaluation copy of Windows Server 2003 at microsoft.com/windowsserver2003 **Software for the Agile Business.**

- ▶ **Information Resources, Inc. (IRI)** manages over 122 terabytes of data to provide consumer behavior insights, advanced analytics, and decision analysis tools for some of the largest consumer packaged goods, healthcare, retail, and financial companies in the world. To meet increasing demand for faster, more granular business intelligence while reducing costs, IRI is using 64-bit editions of Windows Server 2003 and SQL Server™ 2000 on an Intel Itanium 2 system to deliver faster answers to its customers. The result? IRI will be able to process more queries, using a fraction of the number of servers while realizing significant cost savings and improving customer service.

THE RIGHT PIECE BRINGS IT ALL TOGETHER.

Imagine giving
your applications
optimal performance
on blade servers.

Thanks to the blade server platform, you've reduced everything—server size, space, cables, management overhead and most importantly, costs. But then you realize that even when consolidated, the new server platform still has to meet the same demands: it has to be highly available, secure, scalable and completely reliable in its performance.

How do you meet those demands without sacrificing all you've just gained? F5's BIG-IP® Blade Controller software provides traffic management that virtualizes and load balances the blade server environment. Now you can pool blades and concentrate their power, route traffic to those that are performing well, and manage them as a single entity. And with BIG-IP Blade Controller loaded directly onto blade servers, you're guaranteed to achieve the high availability performance it takes to reliably deliver applications.

Give your imagination free reign and your bottom line room to grow.

Visit www.f5.com/bccw to learn more and experience a flash demo. Or call 800-916-7185.



CONTROL YOUR WORLD



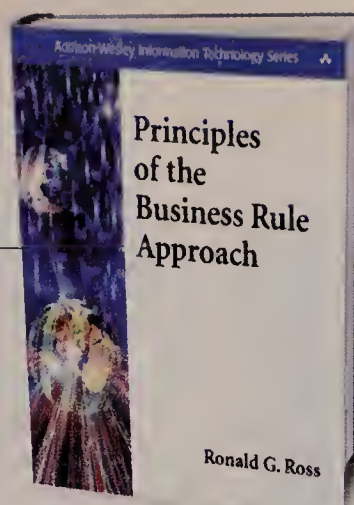
CONTENTS

09.01.03



Corporate Express Goes Direct

In the Technology section: Corporate Express, a \$5.5 billion office products supplier, improved service and cut costs when VPs Bret McNiss (far left) and Wayne Aiello integrated its supply systems with those of its customers. **Page 17**



Business Rules Come First

In the Management section: Don't start an IT project without a clear set of written rules about the way your company conducts business, advises author Ronald G. Ross in this excerpt from his book *Principles of the Business Rule Approach*. **Page 30**

NEWS

- 5 Inadequate IT at NASA** contributed to the *Columbia* disaster, according to the panel that investigated the crash.
- 5 RFID technology** is a threat to personal privacy, say critics.
- 6 PeopleSoft renews** its anti-Oracle refund offer, but Oracle calls it a gimmick.
- 8 Automated patch** management tools are attracting users seeking better protection from security threats.
- 8 Network Associates** unveils network and security management tools for small and mid-size businesses.
- 9 A military unit expands** its deployment of network management tools and robotic PCs to monitor the performance of a logistics system.
- 9 Dell releases** network management software, and Dell PowerConnect switch users will get it for free.
- 10 The nation's first** automated emergency alert network is deployed in Oregon.
- 10 Security vendor** Sanctum upgrades tools for detecting security flaws in software during the development phase.
- 11 New international banking** laws will require changes in banks' IT infrastructures.
- 11 McData aims to improve** its storage switch technology through acquisitions.

TECHNOLOGY

- 20 Stretching Tape Technology.** IT administrators may complain, but tape will be around for at least another 10 years. Here's why.
- 22 Future Watch: Genoa II: Man and Machine Thinking as One.** Future technologies will make it possible for humans and computers to "think together" in real time to preempt terrorist threats.
- 23 Security Manager's Journal: New Spam Policy: Return to Sender.** Vince Tuesday's strategy to automatically return suspected spam before it can hit users' in-boxes works perfectly — almost.



MANAGEMENT

- 27 Dealing With Rogue IT.** Wildcat projects are going on without the knowledge or oversight of IT departments everywhere. Sometimes they make a lot of sense for the company, but sometimes they're disasters.
- 29 Global Toolbox.** Managers are using various tools — such as procurement software and videoconferencing — for managing contract development being done overseas.

OPINIONS

- 6 On the Mark: Mark Hall** gets an earful from Sun on Java handheld security, and he also learns about the cost of spam filters that eliminate important e-mail.
- 12 Maryfran Johnson** thinks IT managers should seek partnerships with business units that have started their own rogue IT projects.
- 12 Pimm Fox** surrenders to the spammers and virus creators who have ruined e-mail's value. But he's found a possible alternative.
- 13 Thornton May** argues that world-class IT operations have a new view on what it means to be a true IT hero.
- 24 Paul A. Strassmann** says it's hard to make a case for IT spending that's mostly for creaky infrastructure.
- 32 Paul Glen** believes the work of archaeologists offers lessons for IT teams.
- 40 Frankly Speaking: Frank Hayes** celebrates a rather bleak Labor Day for IT workers with some good news about how valuable your technology skills are to business performance.

DEPARTMENTS/RESOURCES

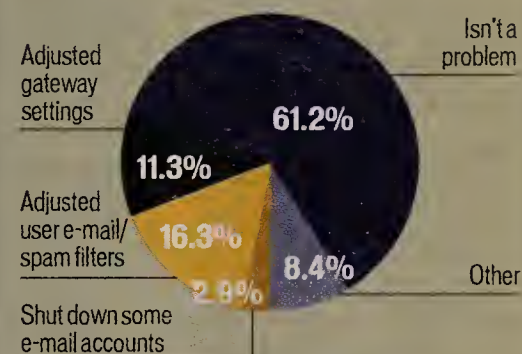
At Deadline Briefs	4
News Briefs	6, 10
Letters	13
IT Careers	34
Company Index	38
How to Contact CW	38
Shark Tank	40

ONLINE

WWW.COMPUTERWORLD.COM

QuickPoll Results

How are you coping with the recent worm-generated e-mail flood?



Take this week's QuickPoll at www.computerworld.com.

SOURCE: COMPUTERWORLD.COM NONSCIENTIFIC SURVEY: 479 VOTES

J2EE vs .Net: The Choice Depends on Your Needs

DEVELOPMENT: The two platforms are remarkably similar, and incorporating a service-oriented architecture is a more important concern. **QuickLink 40744**

A Look at Apple's Power Mac G5s

MACINTOSH: Computer consultant and Macintosh technician Michael de Agonia looks at Apple's evolving enterprise-centric efforts. **QuickLink 40865**

How to Succeed at Supply Chain Collaboration

SOFTWARE: Prescient's Jane Hoffer offers tips on implementing a vendor-managed inventory program. **QuickLink 40835**

What's a QuickLink?

On some pages in this issue, you'll see a QuickLink code pointing to additional, related content on our Web site. Just enter that code into our QuickLink box, which you'll see at the top of each page on our site.

ONLINE DEPARTMENTS

- Breaking News
QuickLink a1510
- Newsletter Subscriptions
QuickLink a1430
- Knowledge Centers
QuickLink a2570
- The Online Store
QuickLink a2420

AT DEADLINE

Suspect Arrested
For Blaster Variant

The FBI arrested a Minnesota teenager who is suspected of developing a copycat variant of the W32.Blaster worm, which targets a security hole in Windows. Jeffrey Lee Parson, 18, of Hopkins, Minn., was being held on one count of intentionally causing or attempting to cause damage to a computer, officials said. Authorities allege that Parson created a so-called B-variant of Blaster and unleashed it via the Internet. (For more details, go to our Web site: QuickLink 40983.)

Boeing, IBM Sign
Voice IT Contract

IBM said it has won a three-year contract worth an estimated \$160 million to manage The Boeing Co.'s worldwide voice communications network. As part of the deal, IBM and Verizon Communications will install a new voice management system for Chicago-based Boeing's U.S. operations. IBM is also offering Boeing variable pricing on telephony systems and other technologies.

Lockheed Martin
Wins FBI IT Deal

Lockheed Martin Corp. in Bethesda, Md., said it has been awarded a five-year, \$140 million contract to be the systems integrator on the FBI's Technology Infusion Program. The project is part of a plan by the FBI to develop a new enterprisewide IT security architecture that's aimed at better protecting key data assets.

Short Takes

SUN MICROSYSTEMS INC. and **SIEBEL SYSTEMS INC.** this week plan to announce a joint development deal aimed at optimizing the performance of Siebel's CRM software on Sun Solaris servers. . . . **PEOPLESFT INC.** said it has bought the remaining shares of **J.D. EDWARDS & CO.** (See related story, page 6.)

Continued from page 1

Blackout

what caused the blackout.

A former Bush administration adviser who has consulted with the U.S. Department of Homeland Security on the power grid issue said the Blaster worm also hampered the ability of utilities in the New York region to restore power in a more timely manner because some of those companies were running Windows-based control systems with Port 135 open — the port through which the worm attacked systems.

Utilities that responded to requests for comment for this article said they weren't adversely affected.

Carol Murphy, vice president of government affairs at the New York Independent System Operator, acknowledged that Blaster affected the utility but said the problem was handled quickly, with no impact on power restoration operations. Joe Petta, a spokesman for Consolidated Edison Company of New York Inc., said there were "absolutely no computer-related problems of any sort that delayed our restoration effort."

The control systems referred to by Seifert, also known as supervisory control and data acquisition (SCADA) systems, are used to manage large industrial operations, such as the natural gas and electric power grids. They're often based on Windows 2000 or XP operating systems and rely on commercial data links, including the Internet and wireless systems, for exchanging information.

Scott Charney, chief security strategist at Microsoft Corp., said that Blaster raised a security and network performance issue for all Microsoft customers and that there was nothing unique about the electric power industry.

Joe Weiss, a control system expert and executive consultant at Cupertino, Calif.-based Kema Consulting Inc., said that in the Blaster case, the power grid fell victim to a

worm that attacked the communications infrastructure.

However, the control systems themselves are also at risk.

Current and former energy industry executives, as well as the former Bush administration security adviser, told *Computerworld* on condition of anonymity that the January outbreak of the Slammer worm affected the real-time control environment of "several" utility companies around the country.

One of those companies was Akron, Ohio-based FirstEnergy Corp. Although FirstEnergy has said publicly that Slammer didn't infect any of the control systems at its Davis-Besse nuclear power plant in Oak Harbor, Ohio, knowledgeable sources said the worm did cause disruptions. However, the plant was in "cold shutdown maintenance mode" and wasn't producing electricity at the time, the sources said. FirstEnergy didn't respond to a request for comment.

"Because Slammer didn't cause any loss of power, it

AT A GLANCE

Recommendations
For SCADA Security

- **Protect SCADA system networks** from the Internet and other company networks via firewalls.
- **Firewall rules should deny all network traffic** that isn't specifically required for the operation of the critical system and supported operations.
- **For open ports, restrict traffic** to those addresses from which such traffic is expected.
- **Do not permit VPN tunneling** through the SCADA network security perimeter.
- **Restrict remote access to SCADA networks.**

SOURCE: NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

wasn't reported by the utilities that were infected," said an industry executive who had discussions with utility officials.

A spokesperson for the North American Electric Reliability Council (NERC), which is helping to spearhead a task force to study the causes of

last month's blackout, declined to comment on the role the Blaster worm may have played. However, a NERC report dated June 20, 2003, shows that the Slammer worm had a significant impact on some utilities.

In one case, a server on a control center LAN running Microsoft's SQL Server wasn't patched, according to the report. "The worm . . . apparently [migrated] through the corporate networks until it finally reached the critical SCADA network via a remote computer through a VPN connection," the report states. As a result, "the worm propagated, blocking SCADA traffic."

In a second case documented by Princeton, N.J.-based NERC, a frame-relay-based control network using Asynchronous Transfer Mode "became overwhelmed by the worm, blocking SCADA traffic." ■

COMPLETE COVERAGE

Read our "Blackout 2003" special coverage on our Web site:

QuickLink a3550
www.computerworld.com

Power Grid IT Contract Up for Bid

WASHINGTON

The electric power industry this week plans to take the first step in a \$100 billion modernization program by requesting bids for a contract to develop an advanced modeling and simulation system capable of advising utilities on what actions to take in the event of a local power failure.

The contract process is being spearheaded by the Electricity Innovation Institute (EII), a high-tech research and development arm of the Palo Alto, Calif.-based Electric Power Research Institute (EPRI).

The technological centerpiece of the EPRI plan is what's known in the energy industry as a "smart grid" capable of monitoring its own health at all times. It would alert officials immediately when problems arise and automatically take corrective actions that enable the grid to fail gracefully and prevent a local failure from cas-

cading out of control, as occurred on Aug. 14.

T.J. Glauthier, CEO of the EII, said the group plans to start demonstration projects and small-scale deployments of the modeling and simulation system in less than five years. He said real-time vulnerability assessments are possible in a year. Glauthier said the bids are being requested for a "multimillion-dollar" contract, but he declined to elaborate on cost expectations.

"Right now, there are sensors in some places, but not throughout the whole grid," said Glauthier. "So utilities don't have a good instantaneous picture of what's happening."

The goal is for all of the nation's utilities to have the modeling tools necessary to simulate failures and their responses. That will allow them to determine in near real time what the consequences of those actions might

be for the larger national grid.

The natural gas industry has used modeling and simulation for several years to improve decision-making during crises.

"We used modeling and simulation this past year when looking at the potential for disruption in the interstate pipelines due to terrorism," said Gary Gardner, CIO of the Washington-based American Gas Association. However, "the nature of gas pipelines is such that you can more easily segment and reroute supply," he said.

Joe Weiss, an analyst at Kema Consulting and a former technical manager at the EPRI, said industry standards are critical.

"Standards are currently being developing in numerous different standards organizations, both in North America and internationally. There is a need for integration between these different standards organizations" before any major modernization program can move forward, he said.

— Dan Verton

Use of RFID Raises Privacy Concerns

'Smart' tags could profile consumers, critics contend

BY JAIKUMAR VIJAYAN

PRIVACY CONCERNS related to the use of radio frequency identification (RFID) technology got an airing at a recent California state legislative hearing.

RFID is a nascent technology that's expected to eventually replace bar codes. It uses low-powered radio transmitters to read data stored in tags that are embedded with tiny chips and antennas.

Proponents of the technology say such "smart" tags can store more detailed information than conventional bar codes, enabling retailers and manufacturers to track items at the unit level.

But privacy advocates who testified at the California hearing late last month said the technology has the potential to seriously infringe on personal privacy.

"If ever there was a technology calling for public-policy assessment, it is RFID," said Beth Givens, director of the Privacy Rights Clearinghouse, an advocacy organization in San Diego. "RFID is essentially invisible and can result in both profiling and locational tracking of consumers without their knowledge or consent."

Placing RFID tags on consumer products will allow merchants to capture personal information about shoppers, Givens said.

For example, the information contained on RFID tags could be picked up by readers in a store to reveal where a consumer purchased an item or how much he paid for it. This could result in unacceptable profiling of consumers, she said.

The unique information contained in each RFID tag could also be captured by various readers and used to track a person's movements through tollbooths, public transportation and airports, Givens said.

"So far, the development and implementation of RFID has been done in a public-policy void. What is needed is a formal technology assessment process to be done by some sort of a nonpartisan body comprised of all stakeholders, including consumers," she said.

That sentiment was echoed by Liz McIntyre, a spokeswoman for Consumers Against Supermarket Privacy Invasion and Numbering, a consumer advocacy group that also testified at the hearing.

"Without some sort of oversight, this technology could create a very frightening society," McIntyre said.

"RFID per se is not the big issue," said Greg Pottie, an engineer at the Center for Embedded Network Sensing at the University of California at

Responsible RFID

Privacy advocates insist that:

- Individuals have a right to **know** that products contain RFID tags.
- Individuals also must **know** when, where and why RFID tags are being read.
- Individuals have the right to **have RFID tags removed or permanently deactivated** when they purchase products or otherwise obtain items containing RFID tags.
- Merchants must be prohibited from **coercing customers into keeping the tags "live"** on the product.
- The default option - **whether to disable a tag or keep it "live"** - must be to disable it.

SOURCE: PRIVACY RIGHTS CLEARINGHOUSE

Los Angeles. "The major questions relate to sharing of digital information, however that information is collected."

A representative from AIM Inc., The Association for Automatic Identification and Data Capture Technologies, a Pittsburgh-based proponent of the use of RFID technology, also testified at the hearing but didn't return calls seeking comment. However, the organization has created a work-group that's focused on addressing privacy concerns relating to RFID.

According to the organization's Web site, it believes that "RFID presents no more of a threat to individual privacy than the use of cell phones, toll tags, credit cards, the use of ATM machines and access-control badges." ▀

Inadequate Systems Play Role in Columbia Disaster, Report Finds

Agency failed to integrate critical data

BY DAN VERTON
WASHINGTON

Spaceflight is an inherently risky business, but the National Aeronautics and Space Administration's reliance on e-mail and a flimsy spreadsheet application helped turn risk into disaster.

That's one of the main conclusions of last week's long-awaited final report by the Columbia Accident Investigation Board (CAIB). The board concluded that "deficiencies in communication... were a foundation for the *Columbia* accident."

The CAIB, chaired by retired Navy Adm. Hal Gehman, painted a picture of a massive bureaucracy that relied on informal e-mail communications to manage the in-flight analysis of the damage to *Columbia*'s left wing by a piece of insulating foam that broke loose during takeoff.

This led to a series of discussions that took place in a vacuum, with little or no

cross-organizational communications and often no feedback from senior managers contacted by low-level engineers with concerns about the shuttle's safety, the report said.

In its attempt to answer why a seemingly IT-savvy agency would rely on little more than e-mail to communicate critical analyses, the CAIB discovered that there were deficiencies in problem- and waiver-tracking systems, and that the exchange of communications across NASA hierarchy was limited.

A major element in NASA's management and decision-making failures was its inability to integrate critical safety information and analysis, the report said. "The agency's lack of a centralized clearinghouse for integration and safety further hindered safe operations," it said.

And while NASA does have an automated system in place to track so-called critical items related to safety, "the information systems supporting the shuttle — intended to be tools for decision-making — are extremely cumbersome and difficult to use at any level," the report said.

"The Lessons Learned Information System database is a much simpler system to use, and it can assist with hazard identification and risk assessment," the board concluded. "However, personnel familiar with the Lessons Learned Information System indicate that design engineers and mission

assurance personnel use it only on an ad hoc basis, thereby limiting its utility."

The CAIB report also slammed NASA for its reliance on a modeling and simulation tool called Crater that was, in the board's opinion, "inadequate" to evaluate the damage caused to *Columbia* by the foam impact.

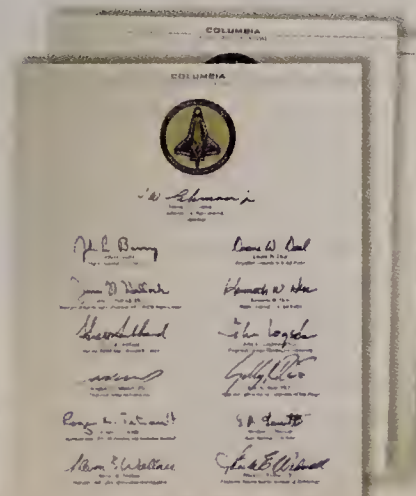
In fact, Crater is nothing more than a spreadsheet that matches the size of debris

strikes with damage to protective heat tiles based on tests and observations from previous shuttle flights.

NASA Administrator Sean O'Keefe said the agency plans within the next 30 days to establish a NASA Engineering and Safety Center to act as the central clearinghouse for all safety data integration and collaboration as recommended in the report.

In addition, he said, engineers will be researching ways to communicate more data from shuttle sensors to ground control centers to give officials more accurate real-time data. They will also work on improving the digitization of shuttle engineering drawings to expedite safety investigations, O'Keefe said. ▀

To read the CAIB report and transcripts of NASA's response, visit our Web site: [QuickLink a3570.computerworld.com](http://QuickLink.a3570.computerworld.com)



BRIEFS

CA Agrees to Settle Class-Action Suits

Computer Associates International Inc. said it has agreed to settle three class-action lawsuits that were filed five years ago over its accounting practices. CA will take a pretax charge of \$144 million during its current quarter to cover the deal, under which it will issue up to 5.7 million shares of new stock. The settlement won't affect ongoing government investigations of CA's accounting policies, the Islandia, N.Y.-based company said.

Siebel Adopts New Governance Rules

Siebel Systems Inc. in San Mateo, Calif., plans to make several corporate governance changes as part of an agreement to settle an excessive-compensation lawsuit filed last year by the Teachers' Retirement System of Louisiana. Among other steps, the CRM software vendor said it will add a new board member and ensure that only outside directors serve on its executive compensation committee.

Amazon Targets E-mail Spoofers

Amazon.com Inc. said it has filed 11 lawsuits against online marketers in the U.S. and Canada, claiming that they illegally used its name in spam e-mail. One of the alleged e-mail forgers has agreed to a settlement, it added. The Seattle-based online retailer said it's working with Internet service providers to find technical ways to make it harder to spoof e-mail addresses.

Short Takes

SILICON GRAPHICS INC. said it will cut 600 more jobs, reducing its workforce to a total of 3,000 employees. . . . **SUN MICROSYSTEMS INC.** and **HITACHI LTD.** extended through 2006 a deal under which Sun resells Hitachi-made storage devices.

MARK HALL ■ ON THE MARK

Sun Disputes Claim That Java Handhelds . . .

. . . lack the security of other Java systems [QuickLink 40320]. Tim Lindholm, CTO of Sun's consumer and mobile systems group, acknowledges that a Java-ready cell phone doesn't have everything in your desktop's Java virtual machine. But to imply that a mobile device's JVM is less secure, "is something we think is an oversimplification," he argues. He says the famous Java "sandbox" that refuses to execute code outside of its domain, thus ensuring software security,

remains in force. There are more than 100 million Java devices on the market, and "we've never had anyone break the basic sandbox," he claims. Some class libraries that handle cryptographic functions were the only things removed from a handheld's JVM. Those are important features, but Lindholm suggests that the move isn't so much a security problem for users as it is "an inconvenience for programmers" who want to encrypt data to and from the handset. And Java mobile units will get even more secure next quarter when device vendors start shipping Java handhelds with secure HTTP, which will handle encryption via Secure Sockets Layer. ■ Part of the problem that faces Web developers using Java, claims Hollis Tibbetts, vice president of marketing at M7 Corp. in Cupertino, Calif., is that "as you start adding multiple back-end systems and packaged applications along with business processes, Java becomes difficult to maintain." To the

rescue in three weeks will be the release of the company's upgraded Java developer suites, M7 Enterprise 4.0 and M7 Professional 4.0. Both are designed to permit the rapid prototyping of Java applications. Probably more important will be the ability to **revise the code of live Web pages**. The enterprise version also adds compatibility with webMethods Inc.'s application connectors, and both versions will be ready to support the Struts framework for Java developers. ■ If your Web application is intended to generate business — and whose isn't? — you'd better know what visitors are doing on your site. But if you rely on analytical tools that depend on a Web site's log files, as so many do, you're using **technology that has "inherent miscalculations."** So claims Geoff Simon, president of Acclivity LLC, a start-up in Northridge, Calif. His \$99-a-month Precision Tracking service will analyze your site's traffic in real time using the internal session

Get in the Chain

Midsize companies linked to a giant corporation's supply chain will get more help by the end of Q4 when **GridNode Inc.** in Redwood City, Calif., ships **GridTalk 2.2**, its real-time supply chain tool. It will come with features like **RFQ management**, **Web services** and **enhancements for the vertical retail market.**

cache. Data from it, he purports, can help you "optimize your site to get users to do what you want them to do." You can sign up for a free 15-day trial of the service at www.acclivitymarketing.com. What's more, the service can link its visitor-tracking data to opt-in customer communications, thus **improving the effectiveness of your spam, er, e-mail marketing campaigns.**

■ If they truly are opt-in messages, the spam-filtering technology from FrontBridge Technologies Inc. is designed to let them pass through. That's because the Marina Del Rey, Calif., company is building a reputation as an **ace spam fighter that eliminates false positives**. Most spam filters regularly snag a few e-mails that you really want, forcing you to dig through long lists of porn come-ons and scams from central Africa so as not to miss an important missive. San Francisco-based Ferris Research estimates that **false positives cost U.S. companies about \$50 per employee**, or \$3.5 billion per year. Dan Nadir, FrontBridge's vice president of marketing, says most spam filters depend on e-mail users creating their own whitelists, which specify given domains or correspondents whose messages you want to receive. He dismisses that approach as "ceding responsibility to the user." In addition to blacklists and other techniques, FrontBridge's TruProtect Message Management Suite service uses a powerful rules-based engine that runs through 10,000 rules to determine whether a message is spam or legitimate. The result: The company "guarantees" only one false positive per 1 million messages while eliminating virtually all spam. Because spammers continue to improve their techniques, however, FrontBridge intends to add technology by month's end that will track spammers to their source servers and block all messages from them. Almost **makes you pity the poor spammer.** ■

PeopleSoft Renews Its Anti-Oracle Refund Offer

BY TODD R. WEISS

PeopleSoft Inc. last week said it has reinstated a refund offer that would entitle buyers of its business applications to get their money back, and more, if the company is bought out and the new owner discontinues PeopleSoft products.

The so-called customer assurance program gives new and upgrading customers guarantees that they will be paid two to five times the cost

of their software licensing contracts if the triggering events occur, according to PeopleSoft officials.

The Pleasanton, Calif.-based company first instituted the money-back guarantee in June, after Oracle Corp. announced its hostile bid to acquire PeopleSoft [QuickLink 39343]. The strategy was aimed at keeping worried users from delaying purchases, and it appeared to work: PeopleSoft reported

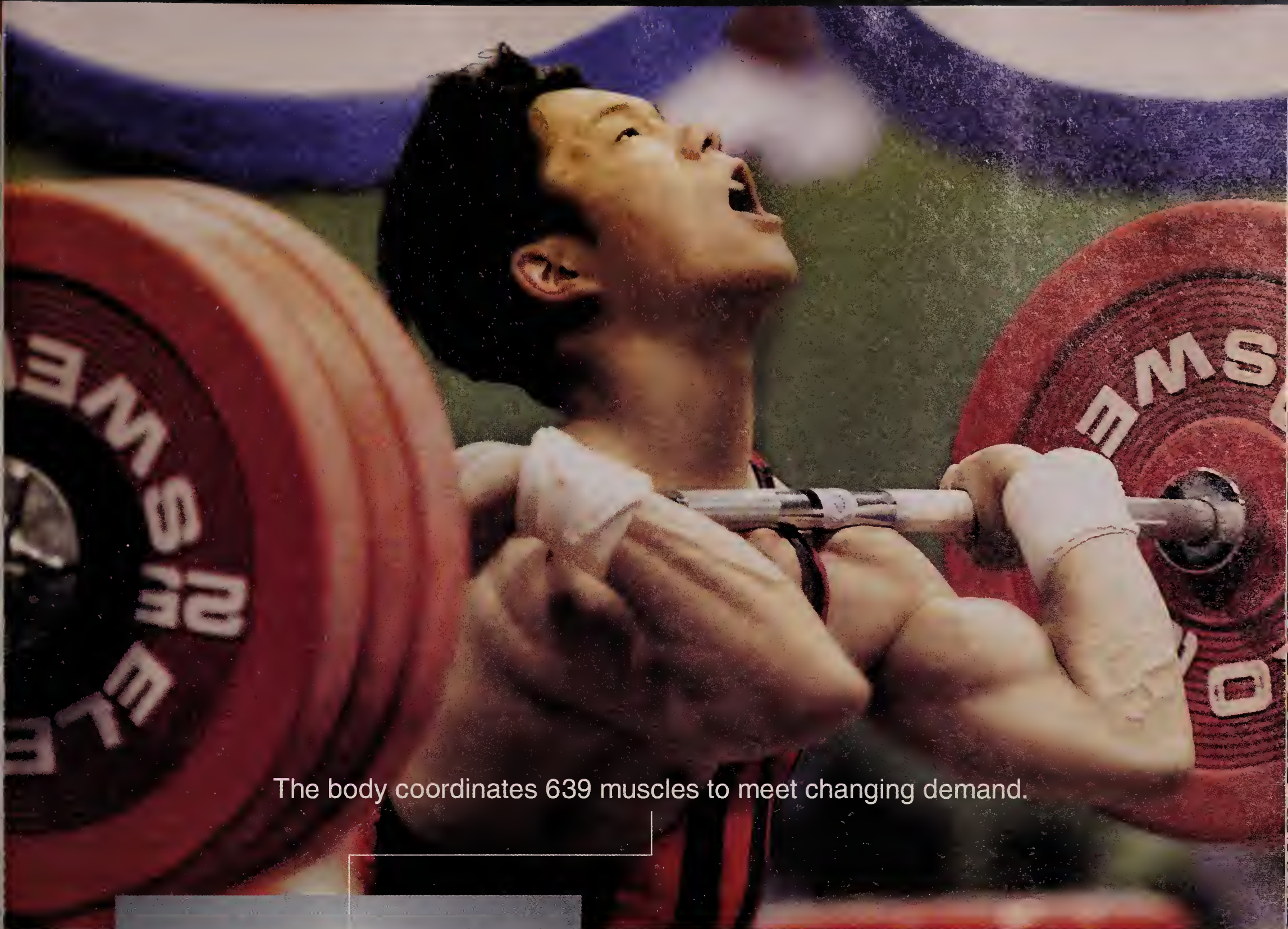
higher-than-expected sales for the second quarter and said more than half of its license revenue came from deals that involved the refund offer.

PeopleSoft ended the refund program at the end of June, but spokesman Steve Swasey said it's being brought back now because Oracle's takeover bid is still in play. "There has been a lot of uncertainty caused by Oracle," he said. "This thing has lingered on." No expiration date has been set on the offer, he said.

PeopleSoft's decision to again offer refunds was "a sharp move," said Michael

Dominy, an analyst at The Yankee Group. "It's a brilliant sales strategy." He added that he was one of many analysts who didn't expect PeopleSoft to meet its second-quarter sales forecast before it turned to the refund strategy.

But Oracle spokeswoman Deborah Lilienthal said the customer assurance program "is nothing more than an unsustainable gimmick." The refund offer "is a moot point because Oracle will support all of PeopleSoft's customers for a period that far exceeds the support deadlines PeopleSoft intends to meet," she added. ■



The body coordinates 639 muscles to meet changing demand.

Manages storage resources to meet changing demand. *On demand.*

IBM TotalStorage™

The human body has an amazing capacity to adapt to shifting demands. So do IBM TotalStorage products. The IBM TotalStorage Virtualization Family manages your individual storage resources as one common virtual pool. It can then allocate storage to your servers, helping to improve availability and utilization. *On demand.* Helping to lower your costs.

TotalStorage: storage for *on demand* business.

Can you see it? See it at ibm.com/totalstorage/ondemand

Users Turn to Automated Patch Management Tools

Blaster, other worms highlight need for protection

BY JAIKUMAR VIJAYAN

HOPING to better protect themselves against escalating security threats such as the W32.Blaster worm, user companies are taking a fresh look at automated patch management technologies.

These products, which are available from a growing number of vendors, help users look for new patches, scan their networks for vulnerable systems and automatically distribute the appropriate patches when required. But they don't lessen the need for companies to thoroughly test patches before deploying them on their networks, users said.

In the wake of its experience dealing with Blaster, Baker Hill Corp., a Carmel, Ind.-based application service provider, has deployed automated patch management technology from Ecora Software Inc. in Portsmouth, N.H.

For about \$5 per system per year, Ecora's software alerts Baker Hill of new patches, scans its networks for systems

that need them and automatically distributes them, said Eric Beasley, senior network manager at Baker Hill. The technology lets the company schedule patch deployment for specific groups of systems and enables it to quickly roll back patches that don't work.

"Till now, we felt we didn't have the business case to say we want to spend money on a patch management system," Beasley said. But threats such as Blaster have highlighted the need for companies to "patch very aggressively," he said.

Vendors offering patch management products include Shavlik Technologies LLC in Roseville, Minn., St. Bernard Software Inc. in San Diego and PatchLink Corp. in Scottsdale, Ariz. Some vendors, such as Ecora and Configuresoft Inc. in Woodland Park, Colo., offer patch management functions as a component of their configuration management software. And Microsoft Corp. offers a similar function with its Software Update Services.

Driving the need for such tools is the simple fact that manual processes aren't sufficient to enable companies to stay current with patches, said Anthony DeVoto, Windows NT administrator at Volvo Finance North America in Montvale, N.J.

There is a need for tools that help companies "more readily identify patches that are applicable to their specific operating environments," said Carl Cammarata, chief information security officer at AAA Michigan in Dearborn.

With the dramatic increase in the number of vulnerabilities being reported, it has become important for companies to have tools that can automatically deploy only the patches that matter, users said.

According to the CERT Coordination Center in Pittsburgh, more than 4,000 software vulnerabilities were re-

ported in 2002, compared with 2,400 in 2001. Just under 2,000 were reported through July of this year.

"Patch management seems to have found itself a full-time position within IT security departments," DeVoto said.


Volvo is a user of St. Bernard's patch management software and was able to deploy the patches for Blaster in a matter of hours, DeVoto said. Despite the automatic distrib-

ution that's enabled by St. Bernard, no patching is done without testing the software first, DeVoto added.

The fact that patches still need to be tested before they can be deployed has Bruce Azuma, corporate director of information technologies at Broadview, Ill.-based Wilbert Inc., considering outsourcing the company's patch management functions. "Patching is an area . . . we have a lot of issues with at this time," he said. ▀

MORE BLASTER

Read more about the Blaster worm on our special coverage page:

 **QuickLink a3580**
www.computerworld.com

PRODUCT INFO

A sampling of patch management products:

VENDOR: Shavlik Technologies

PRODUCT: HFNetChkPro

COMMENTS: Deploys patches in several environments, including Windows NT, XP and 2000; Windows Server 2003; Microsoft Exchange; and Java virtual machines.

VENDOR: St. Bernard Software

PRODUCT: UpdateExpert

COMMENTS: A new feature in the latest version allows the software to be managed by Hewlett-Packard Co.'s OpenView.

Network Associates Adds Low-End Management and Security Tools

Pricing about half the cost of Sniffer line

BY MATT HAMBLIN

Network Associates Inc. last week announced network and security management software for small and midsize users, saying that the products top out in price at about half of the \$12,000 starting cost for its enterprise-class Sniffer tools.

The new Netasyst Network Analyzer software is designed for use in managing 10/100 Ethernet installations and 802.11 wireless networks at companies with up to 500 end users, said Chris Thompson, vice president of product marketing at Network Associates in Santa Clara, Calif.

Netasyst can automate network and application problem-resolution efforts and provide IT managers with packet-level data about network performance and the functioning of firewalls, intrusion-detection systems and other security technologies, Thompson said.

Austin Bank began testing Netasyst early last month on a network that supports operations at 19 branch offices, said Jeff Sowell, a network engineer at the Jacksonville, Texas-based bank. The bank has used the tool to monitor

slow response times on a Microsoft SQL Server database application and to track an apparent network intruder, who turned out to be a telephone technician who was using the network for maintenance purposes without notifying the bank.

Sowell said he looked at several network management products but liked the idea of using a tool from a well-known vendor. In addition, Netasyst turned out to be easy to use. An Expert Analysis feature "is handy for somebody

like me that doesn't do this every day," he said. "It makes any idiot pretty good at analyzing traffic."

Network Associates is primarily known as a vendor of security software for large companies, said Stephen Elliot, an analyst at IDC in Framingham, Mass. But the network management market for smaller businesses is fragmented and not well served by management tools vendors such as IBM's Tivoli Software unit, Computer Associates International Inc. and Hewlett-Packard Co., Elliot said.

The closest competitors to Netasyst are products from Ipswitch Inc. in Lexington, Mass., WildPackets Inc. in Walnut Creek, Calif., and Network Instruments LLC in Minneapolis, he added.

Netasyst is based on technology that's used in the Sniffer product line, Thompson said. But the new offering will be sold as software, whereas most of the Sniffer products are appliances that include both software and dedicated hardware.

Another distinction between the two technologies is that Netasyst won't work on Gigabit Ethernet networks or over WANs, Thompson said. ▀

Corrections

The Hands On Reviews feature in our Aug. 25 Technology section ("Handhelds Try to Do It All") incorrectly listed a secure digital expansion slot as one of the features built into Handspring Inc.'s Treo 300 handheld device. The overall grade and value for the money rating that were given to the Treo 300 remain the same.

In our Aug. 25 issue's Q&A with Microsoft Corp. Vice President Jim Allchin, the value of the contract between Microsoft and the Department of Homeland Security was stated incorrectly. The correct value is \$90 million.

Netasyst Network Analyzer

■ **Starts at \$1,395** for management tools that can pinpoint the root causes of network problems on 10/100 Ethernet LANs but don't include Network Associates' Expert Analysis technology.

■ **Includes five other product offerings**, with a high-end version that provides the Expert Analysis capabilities, supports both wired and wireless LANs and costs \$6,590.

■ Network Associates said all six versions include **one year of free product support**.

Questions on Business Intelligence? Computerworld's IT Executive Summit Has the Answers

Apply for complimentary registration* at
www.itexecutivesummit.com/bi

* Complimentary registration is restricted to qualified
IT executives only.



COMPUTERWORLD

IT Executive Summit

on Business Intelligence

**Questions on
Business Intelligence?
Computerworld's
IT Executive Summit
Has the Answers**

Apply for complimentary registration* at
www.itexecutivesummit.com/bi

* Complimentary registration is restricted to qualified
IT executives only.



COMPUTERWORLD
IT Executive Summit
on Business Intelligence

Military Unit Expands Use of Monitoring Tools to Detect Performance Glitches

Transcom measures application response times with robotic probes

BY MATT HAMBLÉN

The U.S. military's unified transportation unit is expanding a deployment of network management tools and robotic PCs that monitor end-user experiences on the global system used to make sure that troops, weapons and supplies arrive on time and in the right places.

The U.S. Transportation Command (Transcom) for more than a year has been using 24 PCs that function as automated probes in an effort to detect performance problems affecting users at its 1,100-worker headquarters at Scott Air Force Base in Belleville, Ill. Now, the unit is beginning to roll out the technology for use on the transportation systems run by the U.S. Air Force, Army and Navy.

Frank Barncord, a civil servant who is team leader of

Transcom's service-assurance section, declined to disclose details about the wider deployment plans. But he said Transcom is expanding the

use of the automated probes to the various military branches because the technology has

helped improve performance.

The command's IT staff "has been able to identify service failures ahead of system failures," Barncord said. "We don't want customers to tell us when something is wrong."

The robotic PCs used by Transcom are equipped with BMC Software Inc.'s Patrol End-to-End Response Timer software, which starts at \$5,000 per system, plus a set of custom reporting tools.

The PCs are programmed to periodically run different applications and measure how much time it takes to access databas-

es, internal Web pages and other computing resources.

Barncord said Transcom built a prototype of the system in 2001, two years after it launched a project involving the use of eight other BMC Patrol products to manage different systems on its network.

After the initial Patrol installation, Transcom recorded a 239% increase in its average time between system failures, according to Barncord. But that still wasn't enough to improve end-user performance to desired levels, so the command turned to the robotic PCs. The deployment at Transcom headquarters began several months after the prototype was demonstrated in September 2001.

Undetected Problems

Doug Story, a lead contractor at NCI Information Systems Inc. in McLean, Va., who is working with Transcom, said the PCs can alert systems administrators to performance problems that might otherwise

go undetected.

For example, about two months ago, the PCs detected slow user response times on a variety of applications, which were traced two days later to a proxy server that had been improperly rebooted, Story said.

And six months ago, when some end users were moved to a fail-over site, the PCs found slow response times, even though Transcom's network monitoring tools showed everything running properly. Eventually, a database administrator identified the culprit: a database that needed to be defragmented.

Transcom is about to begin a thorough study of the effectiveness of BMC's tools. But Lt. Col. Scott Ross, a spokesman for the command, said the software has helped Transcom perform much more efficiently during operations in Iraq and Afghanistan than it was able to do during the Persian Gulf war in 1991.

Jean-Pierre Garbani, an analyst at Forrester Research Inc.



THE MILITARY'S transportation unit, called Transcom, is using robotic PCs to help ensure that troops have what they need.

in Cambridge, Mass., said that Transcom's use of robotic PCs to measure end-user performance is advanced compared with what most IT departments do.

But he added that corporate network managers should make similar measurements, "because applications have grown so complex that nobody has a good picture of how an application works." ■

Dell to Release Network Management Software

Tools are free for users of its switches

BY MATT HAMBLÉN

Dell Inc. this week will announce a set of network management tools that it plans to offer at no extra cost to users of its PowerConnect line of switches.

The OpenManage Network Manager software is designed to help IT staffers centralize the management of PowerConnect installations that include more than 10 switches, said Ulrich Hansen, a senior product manager at Dell, which entered the market for networking equipment two years ago.

Network managers will be able to use the software to deploy firmware updates and

change the configurations of multiple switches with a single operation, saving time and money compared with doing such work on individual devices, Hansen said. In addition, the new products, which join existing OpenManage tools for servers and PCs, can track networking gear made by rival vendors, diagnose network problems and schedule data backup operations.

Dell's network management tools could be useful to IT managers at small and midsize businesses, said Stephen Elliott, an analyst at IDC in Framingham, Mass. But he added that they won't compete against

OpenManage Network Manager includes:

- Discovery and mapping of networking equipment
- Management of devices on an individual basis or in groups
- Event management when network problems occur
- Automated scheduling of maintenance and upgrades
- Performance monitoring

the software suites sold by BMC Software Inc., Computer Associates International Inc., Hewlett-Packard Co. and IBM's Tivoli Software unit for managing large networks.

Instead, Dell's technology is comparable to Cisco Systems Inc.'s CiscoWorks software and products developed by

Lexington, Mass.-based Ipswitch Inc., Elliot said.

Steven Cartwright, director of systems and support at Omnium Worldwide Inc. in Omaha, said the financial services firm plans to test Dell's software on its network, which includes 80 PowerConnect switches that are deployed in networking closets and its data center.

Omnium already uses OpenManage technology to control about 1,000 PCs and 100 servers made by Dell, so the network management tools "will really fit well in our environment," Cartwright said.

The company has been using the PowerConnect switches for the past 18 months. The Dell devices cost about one-third as much as comparable switches from market leader Cisco and have performed well, Cartwright said. But he added that Omnium plans to

keep using Cisco products as its primary data center switches and put PowerConnect on the edges of its network.

Another Dell user, Intervet Inc. in Millsboro, Del., also plans to evaluate the new management software as its network grows larger, said Chad Elliott, a technology team leader at the maker of animal health care products.

Intervet has installed four Dell switches as well as devices made by Cisco. The network management tools will add to the "whole equation" for justifying the use of Dell's hardware, Elliott said. "From what I've heard about the software, it does sound valuable," he added.

Dell offers eight PowerConnect products and has sold about 50,000 of the switches thus far, according to Hansen. "We're still a recent addition to the market, and we have room to grow," he said. ■

BRIEFS

Overseer Calls for Changes at MCI...

WorldCom Inc.'s court-appointed monitor filed a report recommending 78 corporate governance changes at the company, which now does business under its MCI brand name. Included is a separation of the chairman and CEO jobs now both held by Michael Capellas. MCI said its board worked collaboratively on the report and has already voted to adopt all of the recommendations.

... While Oklahoma Charges Company

Meanwhile, Oklahoma's attorney general filed 15 felony charges against MCI and six of its former executives over the accounting scandal that led to its bankruptcy filing. MCI said it will cooperate but claimed that pursuing the case would punish its customers and employees. Also, MCI launched an offer to buy the remaining shares of Digex Inc., a Laurel, Md.-based hosting vendor in which it owns a controlling interest.

Attack Takes Down SCO's Web Site

The SCO Group Inc.'s Web site was inaccessible from Aug. 22 through Aug. 25 because of a denial-of-service attack, the second attack launched against the Lindon, Utah-based company since May. The site was also off-line for about 10 hours on Aug. 26. But SCO, which is mounting a controversial legal campaign against Linux, said that outage was due to work it did in an attempt to mitigate the effects of any future attacks.

Short Takes

MIT confirmed that one of its Web sites was taken off-line after hackers overwrote all of the site's files. ... **COMDISCO HOLDING CO.** in Rosemont, Ill., plans to sell the assets of its U.S. IT equipment leasing business to **BAY4 CAPITAL PARTNERS LLC** in Tampa, Fla.

First U.S. Automated Alert Net Goes Live

RAINS-Net a model for possible national system, creators say

BY DAN VERTON

AFTER 16 months of development and testing, a public/private security partnership based in Oregon has activated what's being described as the nation's first fully automated, Web-based regional security alert system.

Known as RAINS-Net and developed by the Regional Alliances for Infrastructure and Network Security, a partnership of 60 IT vendors and more than 300 public and private organizations, the system will provide automated alerts from the Portland 911 center to schools, hospitals, corporate building managers and others.

The network, which started as a pilot project in March, has applications for any national system that the U.S. Depart-

ment of Homeland Security (DHS) might try to create. Charles Jennings, chairman of the RAINS alliance, and others have already briefed the DHS on the network and obtained federal assistance in setting up and designing RAINS-Net to be capable of supporting future homeland security requirements.

There are currently two RAINS chapters, in Oregon and Washington state. However, RAINS executives are in discussions with three other states about expanding the network and alliance membership, Jennings said.

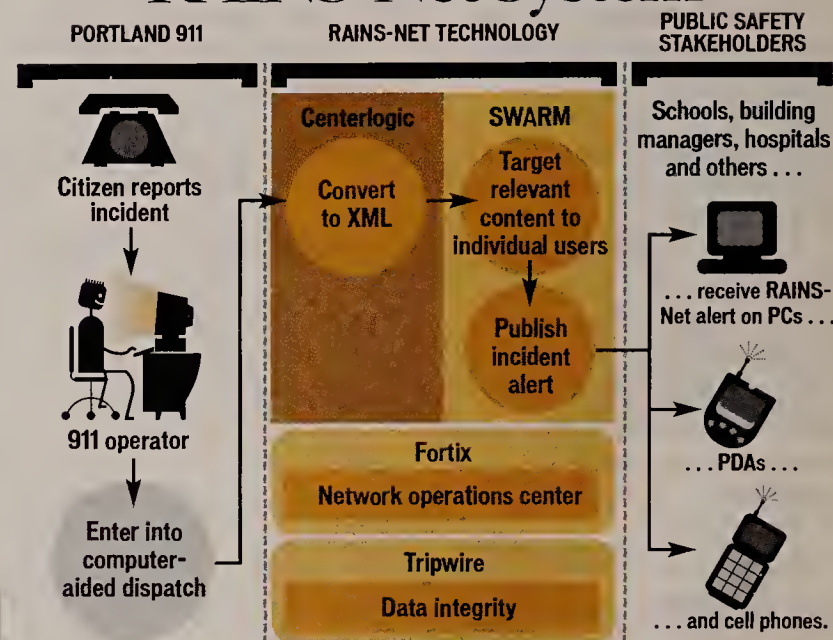
Jennings said other states could replicate the RAINS approach for much less than the \$5 million initial development price — a bargain, he said, given the payoff. RAINS-Net in Oregon is the result of a \$60,000 state grant, thousands of hours of volunteer software development work and technologies donated by big IT

companies that are based in Oregon or have a major presence there, including Intel Corp., Fortix Inc., Tripwire Inc., Swan Island Networks Inc. and Centerlogic Inc.

"Our nation's security ex-

perts have acknowledged the need for a better way to communicate sensitive information and to coordinate emergency response, [which is] especially critical in post-9/11 America," said Susan Zevin, acting director of the Information Technology Laboratory at the National Institute of Standards and Technology in Washington. "The RAINS-Net approach can serve as a model that could be adopted by cities throughout the nation." ▀

RAINS-Net System



Vendor Upgrades Tools for Detecting Security Flaws During App Development

BY JAIKUMAR VIJAYAN

Security vendor Sanctum Inc. last week announced an enhanced version of its AppScan software suite aimed at helping companies detect and fix security flaws during application development.

Sanctum's AppScan 4.0 suite features new automated testing tools that enable quality assurance (QA) and audit staff to test Web applications for security defects before they're deployed.

The AppScan 4.0 QA edition allows quality testers to automatically create customized scripts for testing, comparing and validating potential security defects in Web applications, according to

Steve Orrin, Sanctum's chief technology officer.

Integrating security testing into the application development life cycle is a lot more efficient than finding flaws in the postdeployment phase, when the risks and costs are much higher, said Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa.

The Earlier the Better

Health equipment manufacturer The Nautilus Group in Vancouver, Wash., has used an earlier version of Sanctum's software to test for defects in Web applications that have already been deployed.

"What we found out was that it was very expensive to

catch security omissions and mistakes" at that stage, said Mark Shmulevsky, a systems architect at Nautilus. As a result, the company recently began using Sanctum's testing

NEW PRODUCT

AppScan 4.0 QA Edition

- Creates customized tests for application security.
- Facilitates communication of defect root cause to developers and other personnel.
- Exports results to standard defect tracking and management systems.

tools during the application development and quality testing processes as well, with impressive results, he said.

The tools enabled Nautilus to discover flaws in code that could lead to threats such as cookie poisoning, code injection and manipulation, and buffer overflows on the Internet, according to Shmulevsky.

"My developers were very pleased to know they could concentrate on sizing buffers to prevent overflows during the early development stages," Shmulevsky said.

Sanctum isn't alone in this particular market. Other vendors with similar tools include SPI Dynamics Inc. in Atlanta, KaVaDo Inc. in New York and CenZic Inc. in Campbell, Calif.

"Any large company that is doing significant Web development is looking at these tools," Lindstrom said. ▀

Global Standard Will Force Changes in Banks' IT

Tighter database integration, new risk management engines will be needed

BY LUCAS MEARIAN

A proposed international regulation that would require banks to tighten their integration of different back-office systems and use more sophisticated risk management tools is expected to be finalized in the fourth quarter, thus pushing companies to begin capturing customer data for compliance purposes by late 2004.

The Bank for International Settlements (BIS) in Basel, Switzerland, is overseeing development of the new standards, and it plans to require the 10 largest U.S. banks to comply by the end of 2006. From an IT standpoint, the proposal being considered by the BIS calls for banks to take steps such as developing rules-based risk management engines and knitting together customer databases.

Complying with the new Basel Capital Accord, which is known as Basel II, could cost the U.S. financial services industry \$12 billion by 2006, according to a report released last month by TowerGroup in Needham, Mass.

Approximately 20 of the nation's largest banks would likely have to spend between \$50 million and \$100 million each on technology in order to minimize the amount of money they must keep in reserve to offset credit and business risks, said TowerGroup analyst Guillermo Kopp.

Exercising Caution

If it's approved as expected, Basel II will increase the minimum amount of money that banks need to set aside to cover potential risks, which currently equals 8% of the total capital they have on hand. The regulation will also add a new category of operational risk management, involving possible problems such as late payments or trades that don't get processed because of systems or data-entry errors.

But Basel II would provide undetermined financial incentives for institutions that manage risk more proactively through the use of rules-based engines and internal reporting standards, Kopp said. He added that improved automation of internal processes also could produce money-saving efficiencies and help users minimize their exposure to risks.

Nonetheless, the Basel II proposal is generating concerns among both large banks and smaller institutions.

For example, America's

Community Bankers (ACB), a trade group in Washington that represents local banks, is opposed to Basel II as it currently stands. ACB spokesman Jim Eberle said the group believes that requiring the installation of sophisticated IT systems would place an unfair financial burden on small banks and savings-and-loan firms. "It's our understanding that it does require a big outlay for a small institution to be able to do the calculations for internal risk models," Eberle said.

Meanwhile, Citigroup Inc. Chief Financial Officer Todd Thomson said in a July 31 letter to the BIS committee shepherding the Basel II proposal

Taking on Risk

Banks that are required to comply with Basel II or that decide to opt in will have to:

BUILD policy-based software engines to determine the credit risk of customers.

TIE together islands of customer data to better track their transaction records.

DEVELOP internal business rules designed to mitigate operational risks.

that measures proposed in the latest revisions would place banks on an uneven playing field with one another and put

them at a disadvantage against other financial services firms.

The policy-based systems envisioned by BIS would be tied to so-called advanced measurement approaches requiring at least two years of historical transaction data about customers. To meet Basel II's 2006 compliance deadline, banks would have to begin implementing the advanced policy engines and capturing data next year.

According to TowerGroup's report, U.S. banks with international operations will be hardest hit by Basel II's increased capital reserves requirement. But the impact of the new regulation will be felt more widely, Kopp noted. "Over time, everybody will need to comply," he said. ▀

McData Aims to Buy Its Way To Better Storage Switches

Plans to acquire two vendors, invest in a third

BY LUCAS MEARIAN

McData Corp. last week announced plans to acquire two vendors of storage networking products and invest in a third company, as part of an effort to gain a functionality edge over storage switch rivals Brocade Communications Systems Inc. and Cisco Systems Inc.

Broomfield, Colo.-based McData said it will buy Nishan Systems Inc. for \$83 million in cash and pay \$102 million for Sanera Systems Inc. In addition, McData is paying \$6 million to Aarohi Communications Inc. for a 15% ownership stake and the right to use the San Jose company's software and processors in a new line of intelligent switches.

Together, the three deals are designed to help McData broaden its existing line of directors for Fibre Channel storage-area networks (SAN) to include storage-over-IP capabilities. The technology additions will also expand the port count on the devices it sells

from a maximum of 140 now to 256, said Mike Gustafson, senior vice president of worldwide marketing at McData.

Sunnyvale, Calif.-based Sanera previewed its 256-port DS10000 Datacenter-Class Director at the Storage Networking World conference in April but has yet to ship the product.

Gustafson said that in addition to the higher port count, a key technology being developed by Sanera is dynamic partitioning, which lets IT managers carve up a switch in order to support different applications separately.

Nishan, which is based in San Jose, makes multiprotocol switches that use the Internet Fibre Channel Protocol and Internet SCSI to transport

block-level data over Ethernet. Nishan's switches encapsulate Fibre Channel and SCSI data packets with IP headers, allowing users to connect low-end servers to SANs for data backups or to link remote SANs.

Gustafson said McData expects to close the acquisition deal by October and then immediately make Nishan's switches available to storage vendors on an OEM basis.

Sanera's switch is in beta-testing and is due for shipment in next year's first quarter, he added.

Support for the Fibre Channel over IP protocol also

is in McData's product plans, and the company intends to bring together the new devices and its existing switches under a single management platform.

Denis Van Dale, network administrator at Steinbach Credit Union Inc. in Stein-

bach, Manitoba, uses Nishan's switches to replicate banking data and other information from the company's primary data center to a backup site over a wireless IP network [QuickLink 37171].

Van Dale said that for now, he's not concerned about diminished support for the switches in light of the McData buyout. But, he added, "time will tell."

Follow the Leader

Tom Buiocchi, director of product marketing at San Jose-based Brocade, claimed that McData is simply playing catch-up with it and Cisco.

"This is a well-known progression in technology that the other two of us have been offering for some time now," Buiocchi said. For example, Brocade obtained storage-over-IP capabilities when it bought Rhapsody Networks Inc. in January.

But Nancy Marrone-Hurley, an analyst at Enterprise Storage Group Inc. in Milford, Mass., said McData has now surpassed Brocade on functionality and is going head-to-head with Cisco, which also has a director-class SAN switch with IP capabilities.

"Brocade needs to play catch-up," she said. "They're the ones that are behind." ▀

ARRAY UPGRADE

IBM beefs up its FAST600 midrange disk array.

QuickLink 40877
www.computerworld.com

A Look at the Technologies McData Is Buying

Internet SCSI protocol support for connecting remote servers to SANs

Fibre Channel over IP capabilities for tunneling between SANs

Data mirroring and replication functionality through a SAN switch

A 256-port director that can be clustered to support up to 1,024 ports

MARYFRAN JOHNSON

Rogue Warriors

WHO'S IN CHARGE HERE? When it comes to IT projects, that would be you and your technology group, right? If only reality would stop intruding.

If only there were no such thing as "rogue IT," the catch-all term for those unauthorized, independent purchases of technology that scoot beneath the radar of almost every sizable IT shop. This uninvited influx may include anything from wireless devices, PDAs and Linux desktops to instant messaging or PC applications. In "Dealing with Rogue IT," our lead management story on page 27 (and online at Quick-Link 40666), reporter Gary H. Anthes examines the numerous creative ways senior IT managers are coping with these bootleg projects.

To get a quantitative fix on how serious the problem is, we surveyed 108 IT professionals on *Computerworld.com* and found that a rather astonishing 90% were all too aware of rogue projects under way in their companies. One figure in particular leapt out, making it harder to castigate those unruly users for taking matters into their own hands: Our survey respondents admitted that 38% of their unauthorized IT projects were successful.

Not a bad score for a bunch of amateurs.

Of course, the downsides of rogue IT can be just as striking. Money squandered. Business operations disrupted. Company security compromised. Small departmental systems blossoming into expensive, badly designed enterprise applications. Careers scuttled. As one CIO in our story lamented in the aftermath of a minor ERP disaster, "Had they come to us... we'd have helped them choose [the right product], helped write the scope of work, identified consultants, identified hardware and generally played a significant advisory role."



MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran.johnson@computerworld.com.

Those last three words are the ones to focus on: *significant advisory role*. The future of IT isn't about command and control — it's about forging deeper, more supportive relationships with your business users. Engage them. Enlighten them. Enable them.

"When I look at the IT of the future, it really becomes a lot more of a

competency center, for program management, contract management, relationship management," says Greg Schueman, CTO at Mercury Insurance Group in Los Angeles. He sees the definition of rogue IT evolving in a more positive direction, and he hopes that IT organizations will evolve with it.

How to do that? Consider trying some of these ideas:

- Focus on the bright financial upside. Funding IT projects through the business units just about guarantees

more dedicated ownership and involvement on their parts.

- Infiltrate user departments wherever feasible. At Geisinger Health System, the IT people who support the lab equipment share space with the user experts who manage and run it.

- Encourage a certain amount of user exploration, but keep tabs on it. At Blue Cross and Blue Shield of Minnesota, business users get all the leeway they want during the technology assessment phase of a project. But once system design and development kick in, so does the IT group.

- Make sure all the likely suspects in your business units are familiar with your corporate technology standards, including databases, PCs, operating systems, e-mail and query tools. Make it known which vendors are preferred partners. Who wants to pay full price when there's a bargain available?

- Ask yourself some hard questions about why users are hiding their technology needs from you. How much static is there on those communication lines between IT and the business units?

Finally, assume that rogue installations will increase in the future, and plan accordingly. Figure out how to join forces. Become their expert advisers. Get back in charge. ▀

PIMM FOX

Dodge Spam By Going One-to-One

I GIVE UP.

After spending hours battling Blaster worm variants and setting e-mail filters to block Sobig.F, I surrender. The e-mail spammers, hackers and miscreants win. I no longer expect e-mail to function consistently. It acts more like a vintage automobile that takes constant tinkering. For essential communication, it's time to look elsewhere.

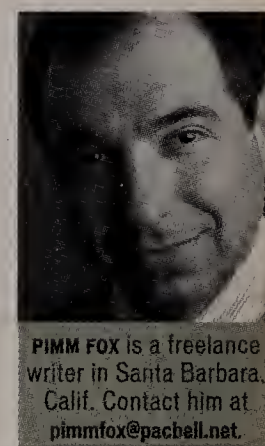
A promising alternative is a one-to-one communications channel that bypasses e-mail entirely. (No, I'm not talking about the telephone.) Ironically, this solution comes from the same group blamed for lots of spam: marketers.

RealConnect is a small client-side application that works with a transactional server. It creates a one-to-one private communications channel. And it was designed by San Rafael, Calif.-based DataLode Inc. to give marketers a way to reach customers.

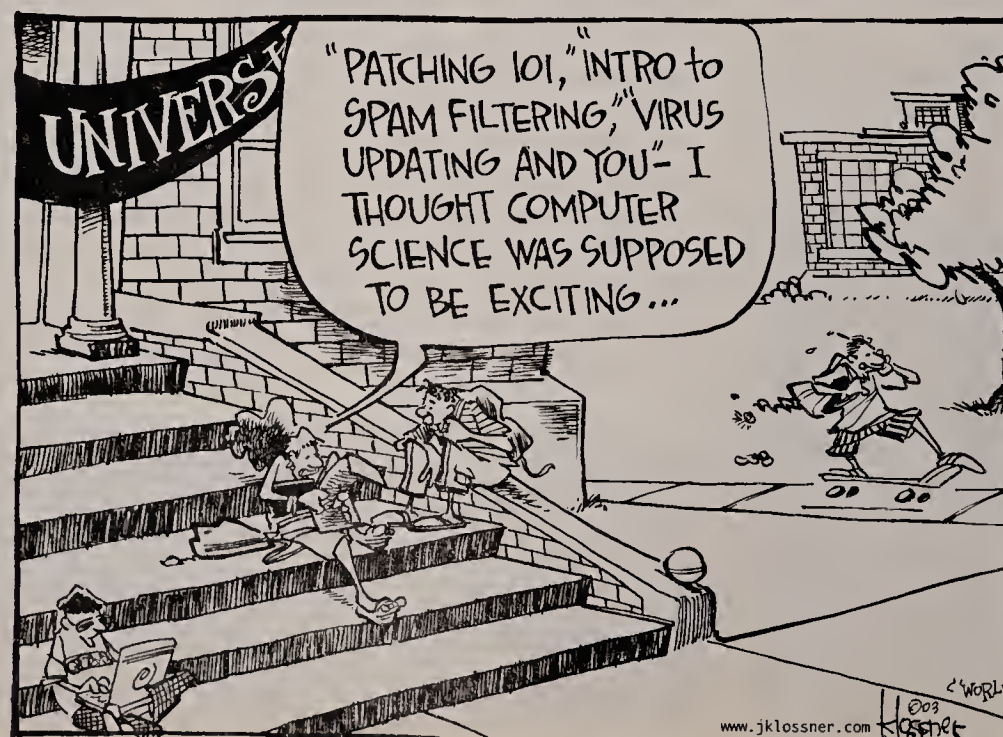
The transactional server waits for a connecting agent (the thin client) to be verified and in real time relays information over an open port. For example, a user might ask a trusted online vendor for a travel itinerary based on price and date. When and if that information is matched against a database, a one-to-one message is sent in the form of an icon, an audio alert or an instant message. The one-to-one message can have an SMTP wrapper enabling interaction with back-end systems and navigation through corporate firewalls.

The procedure was created because messages customers had requested (for example, "Send me details when a product is on sale for 50% off") were being blocked as spam. Indeed, online travel company Orbitz uses the technology to notify people who have already approved the receipt of offers.

While this one-to-one private channel was built to make selling easier,



PIMM FOX is a freelance writer in Santa Barbara, Calif. Contact him at pimmfox@pacbell.net.



Are you prepared for today's storage challenges?

Attend the leading conference for:
IT Managers
Storage Architects
Infrastructure Professionals

STORAGE NETWORKING WORLD



October 27-30, 2003
 JW Marriott Grande Lakes Resort
 Orlando, Florida

Co-owned and Produced by:

COMPUTERWORLD

Co-owned and Endorsed by:



Hear One of the World's Top IT Executives



MasterCard International
Jerry McElhatton
 President
 Global Technology and Operations

Learn from Top IT Executives Including:



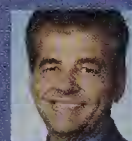
General Motors
 Tony E. Scott
 Chief Technology Officer
 Information Systems & Services



Burlington Coat Factory
 Brad Friedman
 VP of Information Services



Cisco Systems
 Lance Perry
 Vice President
 Worldwide IT Infrastructure



Depository Trust and Clearing Corporation
 George Perretti
 VP for Corporate Infrastructure Contingency Planning

PLATINUM SPONSORS



GOLD SPONSORS



CONTRIBUTING SPONSORS



MEDIA SPONSORS



TRAINING PARTNERS



PARTNER PAVILION SPONSOR

Microsoft

Storage Networking World® Fall 2003 Sponsors as of 8/22/03

For more information visit **WWW.snwusa.com/print** or call **1-800-883-9090** (1-508-820-8159)
 To sponsor and participate, call Ann Harris at 1-508-820-8667

The Leading Conference for IT Managers, Storage Architects and Infrastructure Professionals

STORAGE NETWORKING WORLD®

October 27-30, 2003
JW Marriott Grande Lakes Resort
Orlando, Florida

Co-owned and Produced by:

COMPUTERWORLD

Co-owned and Endorsed by:



Are you grappling with storage issues in this tough economic environment? Want to find out how top IT executives and managers at companies like General Motors, MasterCard, UPS, AOL and many others are coping? Then plan to be at Storage Networking World!

- Storage Management
- Enterprise Infrastructure
- Business Continuity
- Data Management and Security
- Emerging Technologies

Why You Should Attend

Benefit From the Most Comprehensive Program

No other storage event gives you a program so rich with experiences - whether they're industry and pre-certification primers, general sessions, tutorials, opportunities to see technologies at work ... or the rare chance to talk to the very engineers that make them work.

Easily Navigate an Agenda Packed With Choices and Learning Experiences

No other storage event provides an agenda woven with so many logical choices - choices that allow you to tailor your valuable time to your very specific needs. (See the full agenda at www.snwusa.com.)

Get an Education Endorsed by the SNIA

No other storage event offers a learning experience developed and sanctioned by the industry's most influential storage association - highlighted by the SNIA-delivered technical tutorials.

Meet Experts and Shop in the Largest Available Storage-specific Solution Mall

No other storage event allows you to see all the players and solution providers in one place. It's literally your one-stop "solution mall."

IDC Storage Analyst Briefing Learn the State of the Storage Market: 2004 and Beyond

In this special briefing,* IDC's key storage analysts will present the latest industry data, insights and analysis on trends affecting storage vendors. In these interactive presentations, IDC's analysts will bring you up to speed on the current and future state of markets for storage arrays, SAN infrastructure, storage components, storage management software, and storage services. Analysts will also address topics including:

- New technology adoption (SATA, iSCSI, 4GB FC)
- Emerging storage architectures (content aware storage, nearline storage, tiered storage)
- New storage network infrastructure (virtualization, networked storage)
- Evolving paths to market for storage solutions

*This session is intended for IT vendors; no non-IDC analysts permitted in this special session.

See SNW's Flagship Interoperability & Solutions Demo

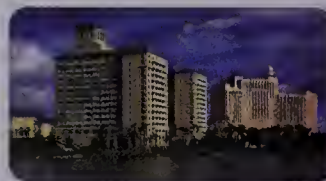


No other storage event gives you:

- 40-plus SNIA member companies collaborating on integrated solutions
- the opportunity to meet leading experts and engineers
- access to \$25 million worth of proven technology in action



Enjoy Orlando's NEW JW Marriott Grande Lakes Resort!



No other storage event allows you to learn, network and enjoy the conference in such a relaxing, comfortable and unique setting.

For more information and to register,
visit www.snwusa.com/print or call 1-800-883-9090 (1-508-820-8159)



"... SNW is a great educational opportunity ... I have the ability to talk to peers ... I also have first-hand access to vendors ..."



"... SNW is a great educational opportunity ... I have the ability to talk to peers ... I also have first-hand access to vendors ..."

Steve Roman
Chief Architect
Microsoft



"... I come to SNW because it is key for sharing information and understanding what is going on with other companies ..."

Moe Vaz
VP of Systems Engineering
Marriott International

Hear User Case Studies



OAN POLLACK
Senior System Administrator
America Online



BRAD FRIEDMAN
VP of Information Services
Burlington Coat Factory



LANCE PERRY
Vice President
Worldwide IT Infrastructure
Cisco Systems, Inc.



JEFF PELOT
CIO
Denver Health



GEORGE PERRETTI
VP for Corporate Infrastructure
Contingency Planning
Depository Trust and Clearing Corporation (OTCC)



TONY SCOTT
CIO
Information Systems & Services
General Motors



LAURENCE WHITTAKER
Supervisor
Enterprise Storage Management
Hudson's Bay Company



JERRY MCELHATTON
President
Global Technology and Operations
MasterCard International



MICHAEL GOODE
Director
Storage Services
Nielsen Media Research



KEVIN MERCER
Senior Enterprise Storage Network Manager
RBC Financial Group



LYNN NEAL
Senior Systems Integrator
Sprint



JIM MEDEIROS
IS Systems and Services Manager
United Parcel Service

Learn From Industry Experts



JONATHAN OTIS
VP of Technology
AOIC



GREG REYES
Chairman and CEO
Brocade Communications Systems



MARK LEWIS
Executive Vice President of Open Software Operations
EMC



MICHAEL KARP
Senior Analyst
Enterprise Management Associates



STEVE OUPLESSIE
Founder and Senior Analyst
Enterprise Storage Group



BARB GOLDWORM
Industry Analyst
Consultant and Founder
Focus Consulting



DAVE ROBERSON
President and CEO
Hitachi



LAURA SANDERS
Vice President
Tivoli Storage Software
IBM Corporation



CHARLES STEVENS
Corporate VP
Enterprise Storage Division
Microsoft



RICK BELLUZZO
CEO
Quantum



MARK CANEPA
EVP
Network Storage Products Group
Sun Microsystems



JON WILLIAM TOIGO
CEO
Toigo Partners

Agenda Snapshot*

*subject to change

For details, updates, and to register visit www.snwusa.com/print

Monday, October 27

(Pre-Conference Activity and Tutorial Sessions)

9:30am-11:30am Industry Primer, Career Development and Skills Development Tracks
1:00pm-5:30pm SNIA Tutorial Sessions
1:00pm-6:00pm Golf Outing at the Ritz Carlton Golf Course
7:00pm-9:00pm Welcoming Reception

Tuesday, October 28

(General Conference - Day One)

7:15am-8:15am Continental Breakfast
8:15am-9:15am Opening Remarks and Visionary Presentation
9:15am-12:15pm General Sessions
12:15pm-1:30pm Networking Luncheon
1:30pm-3:50pm General Sessions
4:00pm-5:30pm Technical, Technical/Business and Business Tracks
5:30pm-8:30pm Expo and Buffet Dinner, Interoperability and Solutions Demo

Wednesday, October 29

(General Conference - Day Two)

7:30am-10:30am IDC Breakfast Briefing
8:15pm-Noon General Sessions
Noon-1:30pm Expo and Buffet Lunch
Noon-7:15pm Interoperability & Solutions Demo
1:35pm-3:35pm General Sessions
3:45pm-5:15pm Technical, Technical/Business, Business and SNIA Tracks
5:15pm-7:15pm Expo
7:30pm-9:00pm Gala Evening

Thursday, April 17

(Tutorial and Breakout Sessions)

7:30am-8:30am Continental Breakfast
8:30am-11:45am Technical, Technical/Business, Business and SNIA Tracks
11:45am Conference Concludes

Register Today!

Options for IT End-Users*

General Conference Package (Oct. 28, 29):
(Includes General Conference sessions, Expo, Meals and Receptions)

Total 4-day Package (Oct. 27, 28, 29, 30):

(Includes General Conference Package; Technical and Business Tracks; SNIA-produced Tutorials; Pre-certification Refresher Courses)

Options for IT Vendors**

Total 4-day Package (Oct. 27, 28, 29, 30):

(Available to Sponsoring Vendors and their Resellers/Integrators; Industry Consultants; and Storage Solutions Implementors)

Non-Sponsoring/Exhibiting Vendor Package:

Earlybird Registration (through September 12) On-Site Registration (after September 12)

\$895 \$1,295

\$1,290 \$1,690

\$1,290 \$1,690

\$5,000 \$5,000

* IT End-Users are defined as those who are attending Storage Networking World with an intent (and an IT spending budget) to potentially buy/purchase hardware/software/services/etc. from our conference sponsors and exhibitors. As such, account representatives/business development from any company, analysts, venture capitalists, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this interpretation and policy is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090.

** Vendors are encouraged to participate at Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 1-508-820-8667). Alternatively, vendors (as well as venture capitalists, equity analysts, and other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld. You will also be required to adhere to our non-solicitation policy posted on-site.

"Best Practices in Storage" Awards Program

Submit your nomination today at

www.snwusa.com

or email Nanette Jurgelewicz at nanette_jurgelewicz@computerworld.com

Awards Ceremony: Wednesday, October 29, 3:05pm, SNW Main Stage



Pre-Conference Golf Outing

Sponsored by:
Quantum

Complimentary for Registered IT Users

The Pre-Conference Golf Outing at The Ritz-Carlton Golf Club located adjacent to the JW Marriott Grande Lakes Resort, is complimentary (\$165 value) for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

For details: contact Chris Leger at 1-508-820-8277

Travel and Accommodations

IDG Travel is the official travel company for Storage Networking World. They are your one-stop shop for exclusive discounted rates on hotel accommodations.

To reserve your accommodations: visit www.etcentral.com OR call 1-800-340-2262 (or 1-508-820-8159)



For more information and to register, visit www.snwusa.com/print or call 1-800-883-9090 (1-508-820-8159)



"... SNW is the premier event for storage issues and learning how to use storage efficiently ... an excellent forum for me to talk to other users ... allows me to find the latest vendor news in storage ..."

Don Chaffin
Vice President, Quality Assurance
Microsoft Corporation



"... storage is a key component of what we're doing ... at SNW, I've been able to get a good perspective and new ideas on what we can implement and how to do it ..."

Dorian Ryan
Director of Systems Architecture and Administration
Dow Jones / Factiva



"... I get a ton of interesting information at SNW that I don't need to spend time sorting through ... I can ask real questions of real people and get real answers ..."

Mark Erickson
Director of IT Services
University of Utah Hospitals

STORAGE NETWORKING WORLD



October 27-30, 2003
JW Marriott Grande Lakes Resort
Orlando, Florida

Co-owned & Produced by:
COMPUTERWORLD

Co-owned & Endorsed by:



Register for accommodations at:
www.etcentral.com

Application for Conference Registration

TO REGISTER:

- Fax this form to 508-626-8524
- Or register online at www.snwusa.com/print
- You will receive a confirmation via email

QUESTIONS?

- Call: our Customer Service Line at 800-883-9090
- Email: snwreg@computerworld.com

CODE: PRINT

Options for IT End-Users*

General Conference Package (Oct. 28, 29):

(Includes General Conference sessions, Expo, Meals and Receptions)

Earlybird Registration
(through September 12)

☐ \$895

On-Site Registration
(after September 12)

☐ \$1,295

Total 4-day Package (Oct. 27, 28, 29, 30):

(Includes General Conference Package; Technical and Business Tracks; SNIA-produced Tutorials; SNIA-Certification "Test-Ready" Courses)

☐ \$1,290

☐ \$1,690

Options for IT Vendors**

Total 4-day Package (Oct. 27, 28, 29, 30):

(Available to Sponsoring Vendors and their Resellers/Integrators; Industry Consultants; and Storage Solutions Implementors)

☐ \$1,290

☐ \$1,690

Non-Sponsoring/Exhibiting Vendor Package:

☐ \$5,000

☐ \$5,000

* IT End-Users are defined as those who are attending Storage Networking World with an intent (and an IT spending budget) to potentially buy/purchase hardware/software/services/etc. from our conference sponsors and exhibitors. As such, account representatives/business development from any company, analysts, venture capitalists, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this interpretation and policy is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090.

** Vendors are encouraged to participate at Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 1-508-820-8667.) Alternatively, vendors (as well as venture capitalists, equity analysts, and other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld. You will also be required to adhere to our non-solicitation policy posted on-site.

Registration Information: (This section must be completed in order to process your application)

First Name: _____ Middle Initial: _____ Last Name: _____

Title: _____ Company: _____

Street Address: _____ Suite, Apt., etc.: _____

City: _____ State/Prov: _____ Zip/Postal Code: _____

Country: _____ Phone Number: _____ Extension: _____

Fax Number: _____ E-Mail Address: _____

Badge Name: _____ ☐ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Monday, October 27th (PM)? ☐ Yes ☐ No

Please indicate your preferred conference shirt size: ☐ S ☐ M ☐ L ☐ XL ☐ XXL ☐ XXXL

Attendee Profile: (This section must be completed in order to process your application)

SECTION A - FOR IT END-USERS ONLY

Your Business/Industry:

- ☐ Transportation/Utilities
- ☐ Mining/Oil/Gas
- ☐ Media/Publishing
- ☐ Banking/Finance/Insurance
- ☐ Telecommunications
- ☐ Wholesale/Retail (Non-IT)
- ☐ Advertising/Marketing/Public Relations
- ☐ Education
- ☐ Government/Military
- ☐ Healthcare
- ☐ Manufacturing (Non-IT)
- ☐ Other

Your Job Title/Function:

- ☐ CEO/CDD/Chairman/President
- ☐ CIO/CTO
- ☐ VP/GM/Director
- ☐ IS/IT Director/Manager
- ☐ Other IS/IT Department Manager/Supervisor
- ☐ Other Corporate/Business Manager
- ☐ Corporate/Business Staff
- ☐ Consultant (Internal) or Other

Select item below that most closely matches your involvement in IT decisions:

- ☐ Specify features/Technical requirements
- ☐ Evaluate/Recommend Products, Brands, Vendors
- ☐ Create strategy/Determine the need to purchase
- ☐ Set budget for expenditure
- ☐ Authorize/Approve purchase
- ☐ None of the above

Employees in your entire Company:

- ☐ 10,000+
- ☐ 5,000 - 9,999
- ☐ 1,000 - 4,999
- ☐ 500 - 999
- ☐ 100 - 499
- ☐ Less than 100

Estimated annual revenue of your entire company:

- ☐ \$10 Billion+
- ☐ \$5 Billion - \$9.9 Billion
- ☐ \$1 Billion - \$4.9 Billion
- ☐ \$500 Million - \$999 Million
- ☐ \$100 Million - \$499 Million
- ☐ \$50 Million - \$99 Million
- ☐ Less than \$50 Million

Annual company IT budget (All IT products and services):

- ☐ \$100 Million+
- ☐ \$50 Million - \$99.9 Million
- ☐ \$20 Million - \$49.9 Million
- ☐ \$10 Million - \$19.9 Million
- ☐ \$5 Million - \$9.9 Million
- ☐ \$1 Million - \$4.9 Million
- ☐ \$500,000 - \$999,999
- ☐ Less than \$500,000

Annual company IT budget

(Storage products and services):

- ☐ \$100 Million+
- ☐ \$50 Million - \$99.9 Million
- ☐ \$20 Million - \$49.9 Million
- ☐ \$10 Million - \$19.9 Million
- ☐ \$5 Million - \$9.9 Million
- ☐ \$1 Million - \$4.9 Million
- ☐ \$500,000 - \$999,999
- ☐ Less than \$500,000

Your personal IT spending authority (All IT products and services):

- ☐ \$100 Million+
- ☐ \$50 Million - \$99.9 Million
- ☐ \$20 Million - \$49.9 Million
- ☐ \$10 Million - \$19.9 Million
- ☐ \$5 Million - \$9.9 Million
- ☐ \$1 Million - \$4.9 Million
- ☐ \$500,000 - \$999,999
- ☐ Less than \$500,000

Your personal IT spending authority

(Storage products and services):

- ☐ \$100 Million+
- ☐ \$50 Million - \$99.9 Million
- ☐ \$20 Million - \$49.9 Million
- ☐ \$10 Million - \$19.9 Million
- ☐ \$5 Million - \$9.9 Million
- ☐ \$1 Million - \$4.9 Million
- ☐ \$500,000 - \$999,999
- ☐ Less than \$500,000

SECTION B - FOR IT VENDORS ONLY

Your Business/Industry:

- ☐ VAR/VAD/ASP/System Integrator
- ☐ Industry Consultant/Storage Solution Integrator
- ☐ Manufacturing (IT)
- ☐ Computer Retailer/Dealer/Wholesaler
- ☐ Software Development (Storage)
- ☐ Other Computer Related (Non-Storage)

Your Job Title/Function:

- ☐ CEO/CDD/Chairman/President
- ☐ CIO/Controller/Treasurer
- ☐ VP/GM/Director
- ☐ Sales/Marketing/Product Staff
- ☐ CIO/CTD/Other IS/IT Manager
- ☐ Engineering Staff
- ☐ Press

Payment Method

- ☐ Check Enclosed (checks must be received by 10/17/03)
(Make payable to: Computerworld; Mail to: Computerworld, Attn: Pam Malingowski, 500 Old Connecticut Path, Framingham, MA 01701)

- ☐ American Express ☐ VISA ☐ MasterCard

Account Number: _____

Expiration Date: _____

Card Holder Name: _____

Signature of Card Holder: _____

Cancellation Policy (All of the below options require written notification.)

In the event of cancellation, the registrant has three options:

- 1) He or she may substitute another attendee for this conference.
- 2) He or she may transfer this registration to the Spring 2004 Storage Networking World* conference, if written notice is received by October 6, 2003.
- 3) The registration fee will be refunded, less \$250 service charge, if written notice is received by October 6, 2003.

Computerworld reserves the right to limit and/or refuse any registration for any reason.

Schedule of Conference Events (subject to change)

Monday, October 27, 2003

- Industry Primer
- Pre-Conference Golf Outing
- SNIA Produced Tutorial Sessions
- Welcome Reception

Tuesday, October 28, 2003

- General Conference & User Case Studies
- Exposition
- Interoperability and Solutions Demo
- Pre-certification Refreshers

Wednesday, October 29, 2003

- General Conference & User Case Studies
- Exposition
- Pre-certification Refreshers
- Interoperability and Solutions Demo
- Gala Evening

Thursday, October 30, 2003

- Tutorial Sessions
- Pre-certification Refreshers

companies can also use it to keep employees tuned into specific corporate events or information without relying on e-mail. And because this channel comes as a service with tools designed for marketers, there's no need to have an army of programmers setting up expiration dates for messages, directories of approved recipients or preferences for the look and feel of the messages. If you can make a PowerPoint presentation, you can use this.

Another spam problem is storage. Your systems may be storing this junk (desktops certainly are) without your knowledge. With one-to-one private communications, you specify what's to be kept and what's not. Also, this type of communication isn't browser-based, so you're not at the mercy of security snafus related to viewing the Internet.

One-to-one communication isn't for everything — and there's still the issue of replying securely — but it's an innovative alternative when you know you're licked. ▀

THORNTON MAY

Redefining 'Heroic' IT Leaders

DURING the past eight months I have been deeply involved in a multiyear global research project involving hundreds of CIOs and aimed at better understanding the evolving CIO "habitat." I've discovered that it's a varied and exotic ecosystem, indeed.

The data collected puts the companies surveyed into four performance categories:

■ Poor IT shops	22%
■ Average IT shops	39%
■ Good IT shops	23%
■ World-class IT shops	16%

Paying particular attention to performance inflection points (that is, the practices that separate poor IT shops from average IT shops, average IT shops from good IT shops and so on), the data revealed several competency areas affecting overall performance of IT organizations.

One area of operational excellence inherent to all of the world-class IT

shops in the sample was a "managed mind-set" toward IT. The concept of a managed mind-set shouldn't be trivialized as academicspeak or spin, nor should it be demonized as mind control.

Progressive CIOs in our research have revised how they think about IT. At the core of the rethinking was a fundamental change in the perception of what constituted heroic IT.

Popular culture paints heroes in bold, John Wayne strokes, portraying them as bigger-than-life performers riding in to save the day. Day-to-day workers are often stereotyped as Dilbert-like victims or George Babbitts, practitioners of narrowmindedness and selfishness, like the antihero of Sinclair Lewis' novel *Babbitt*.

Analysis of the academic literature on heroism indicates a perceptual bias



THORNTON MAY is a long-time industry observer, management consultant and commentator. Contact him at thorntonamay@aol.com.

that demands certain preconditions for heroism to occur. That is, for someone to become a hero, something perceptibly bad or extraordinary must happen first. It is no accident that America's most respected presidents all served during times of great national trauma, though not all trauma leads to greatness.

In "old-think" IT shops (those not in the world-class category), staffers

perceived as heroes are the ones who fix things when they break, do multiple all-nighters to deliver projects close to deadline or deliver to business users what they were told was impossible to achieve. But how efficient is that approach?

CIOs are no stranger to heroic circumstances. Indeed, 63% of the CIOs in the Global 2,000 arrived at their po-

sition heroically — they're generally regarded as having salvaged a desperate situation left by a predecessor.

As an optimistic futurist, I am obligated to ask: In a world where IT doesn't break down as much as it does today, in a world where IT is well run, will there be opportunities for IT heroes to emerge?

World-class IT shops have redefined IT heroism to include the everyday heroes who build systems that run as promised, who are unafraid of personal responsibility and who are unwilling to accept quick fixes that gloss over problems without getting to their roots.

This is the definition for IT heroes you should be using in your company. You'll be surprised at how many of them you'll find in your organization. ▀

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site: www.computerworld.com/columns

READERS' LETTERS

Outsourcing Acceptance Is Hard to Find

HAS DAVID MOSCHELLA considered the security issues of code being generated in parts of the world that are hostile to the U.S. ["Outsourcing Is Good," QuickLink 40327]? In the same issue that this column ran, just look at the front page and the description of Dan Verton's book *Black Ice* on cyberterrorism.

Steve Farley

Account executive,
PPT Inc., Lancaster, Pa.,
sfarley@pptnet.com

I UNDERSTAND the business case for moving jobs overseas, but since a significant portion of America's tax base is derived from these jobs, I have to wonder why our politicians have never done more to protect them. Maybe we haven't yelled loud enough yet. Then again, maybe David Moschella is right. Maybe it's natural for aging industries to send jobs overseas, even jobs that serve the American public directly. Maybe we should embrace that trend and expand it to other industries that are overdue for modernization. As a start, I know some guys in India who would make very good opinion columnists.

David Woodham

Software engineer,
Raleigh, N.C.

FAIR POINTS ALL by David Moschella. I remember the steel industry contraction of the 1980s and '90s, but the scary thing about the IT contraction is that it has been about 10 times faster. Overnight, the perception of technical people has gone from being wizards, gurus and (affectionately termed) geeks to being dull, commodity drones. Job security has vanished. Things will eventually come back into balance, but this trend will extract a steep human cost in the meantime. Companies that exploit conditions ruthlessly risk a backlash either from the government or from workers when the market and worker mobility improve.

Timothy Wood
San Francisco

SOMETIMES in the marketplace, short-term economics wins over what's wise for the longer term. If we lose out on exploiting the talents of a highly trained pool of professionals simply on the basis of cost per thousand lines of code or hourly pay, we risk not only our country's security but also the competitiveness of U.S. companies around the world. It's been said that the modern economy is global and the problems local, but the U.S. risks giving away the local competi-

tive advantages it has in its workforce through political neglect and a short-term focus.

Charles Olson

Consulting software engineer,
Auburn Mass.,
ctosw@yahoo.com

OUTSOURCING will spell nothing but long-term economic trouble for our country. In these times of huge deficits and tax refunds, corporations that lay off and send IT jobs offshore are assisting in further weakening our country's economic engine. Middle-class workers pay federal income taxes, Social Security taxes and Medicare taxes. Corporations receive far too many tax breaks to make up the difference. Every job lost to a foreign land means that an American taxpayer is no longer helping to fund our defense, social services and health care. Where will that money come from? Yes, outsourcing will be a short-term win for corporate America's bottom line, but the long-term effects will be monstrous.

Vernon E. Bell
Chicago

WHERE IS *Computerworld* digging up columnists like David Moschella and Ward Larkin ["Offshore Outsourcing Is Less of a Threat Than You Think," QuickLink 40490]? Surely their articles are a

test to see if people are reading the publication and if they'll respond to patent hogwash. Both Moschella and Larkin fail to mention the eroding effect on the U.S. when everything is produced offshore and shipped in, and they neglect to speak to the cultural mismatches that will show up, not only in the software produced, but also in the most basic of communications. Their acceptance of the IT outsourcing trend is appalling. While it's true that businesses will do what they feel to be in their best interest and that getting upset won't do any good, lying down in spineless acceptance will do far less.

Nick Bronzan

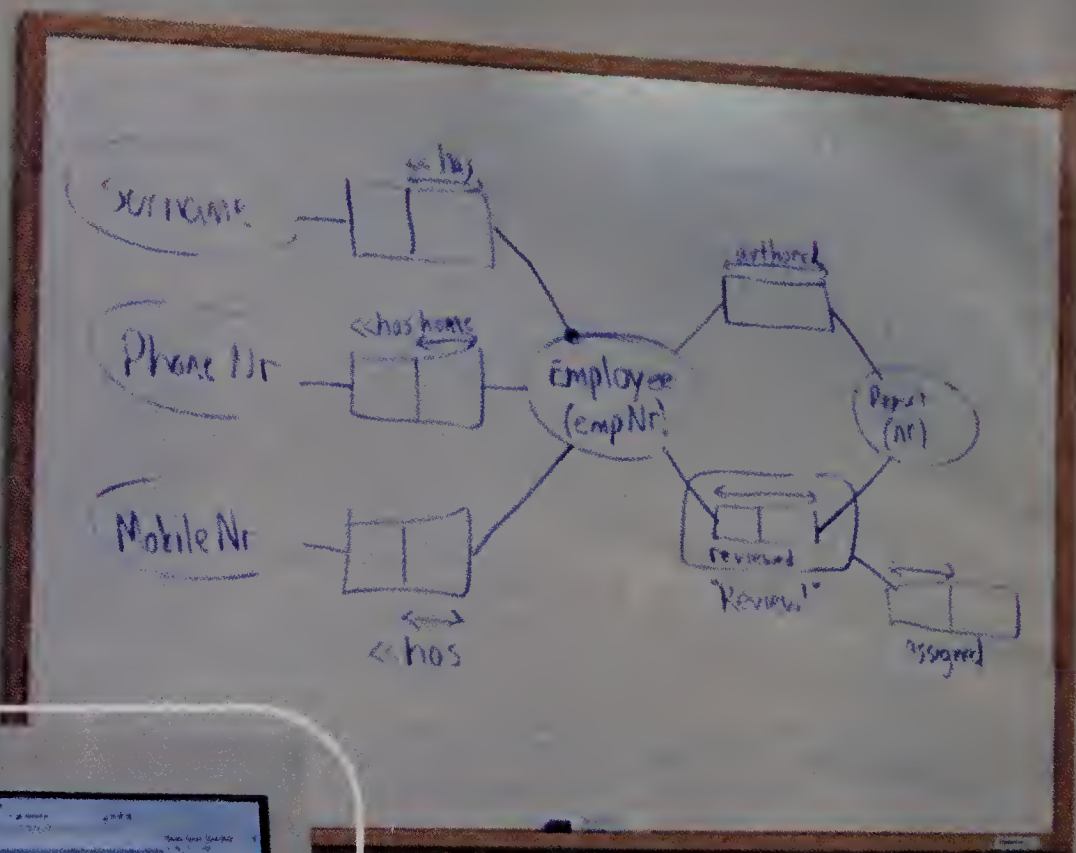
CEO/CTO,
USInvestments Publishing
Corp., Colorado Springs,
nickbronzan@earthlink.net

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

For more letters on these and other topics, go to www.computerworld.com/letters

Microsoft

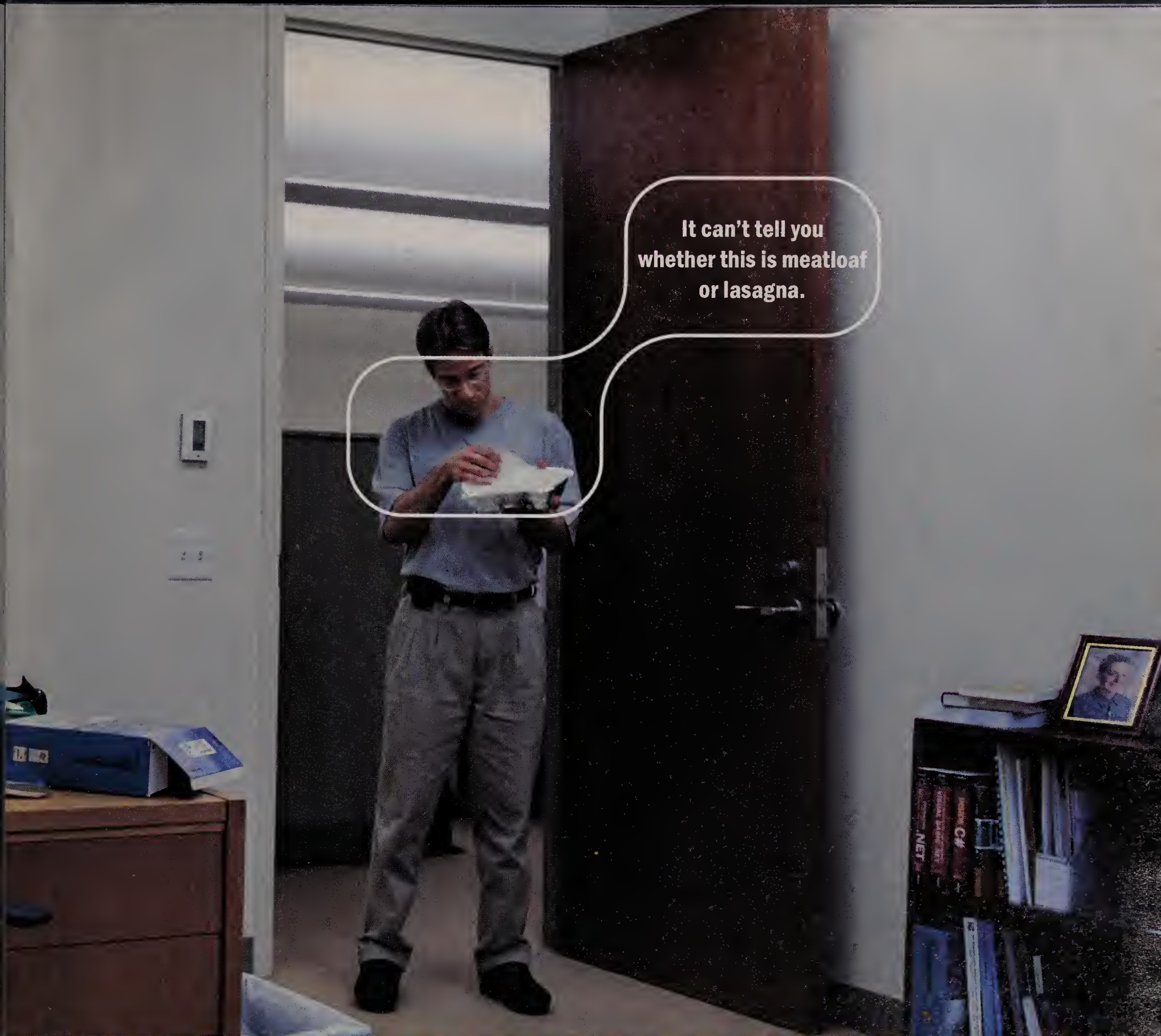
It can make
your Web apps three
times faster.



Visual Studio .NET can help you with (nearly) every part of your job. Your Web applications just got faster. ASP.NET, the Web application environment in Visual Studio .NET, offers dramatically improved performance over classic ASP. Here's how:

- 1 Compiled Page Execution** ASP.NET pages are compiled once and cached in memory instead of being interpreted each time the page is requested.
- 2 Rich Output Caching** ASP.NET's caching features quickly retrieve database queries, full pages (or parts of pages), and objects from memory for improved app performance.
- 3 Crash Protection** Web applications can't be fast if they're

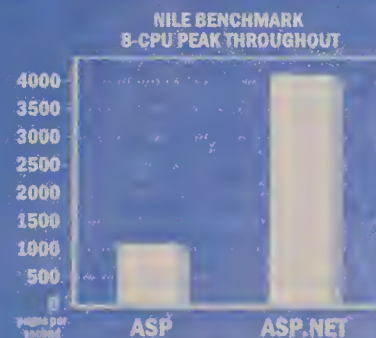
*Connect time fees may apply. The Nile Application Benchmark is a DocuSign/Ziff Davis e-commerce benchmark that represents a complete, end-to-end, e-commerce application with realistic, heavy user loads placed on the system. See msdn.microsoft.com/vstudio/bvrt for complete details. © 2003 Microsoft Corporation. All rights reserved. Microsoft, the .NET logo, Visual Studio, the Visual Studio logo, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.



It can't tell you
whether this is meatloaf
or lasagna.

down. Duh. So ASP.NET automatically detects and recovers from errors like deadlocks so your application is always available. And now the newly released Visual Studio .NET 2003 is here for building and deploying even faster and more stable applications. Try it now: log on to a fully featured, free* online hosted session and get more information at msdn.microsoft.com/vstudio/tryit


Visual Studio .net





Want to cut your IT costs without sacrificing performance? PRIMEPOWER Servers from Fujitsu.



The secret is out. PRIMEPOWER™ Solaris™-compatible servers from Fujitsu® deliver a major breakthrough in price/performance compared to our more famous competition. Want proof? PRIMEPOWER servers offer such an advantage that the world's leading companies use them to boost their performance. And there's a PRIMEPOWER server that's right for any application you need—from single CPU, rack-mounted servers to enterprise-ready systems that scale to 128 CPUs for unsurpassed performance in the data center.

Of course, it's not just the hardware you're buying. It's also Fujitsu's 30+ years of experience supporting high-performance, mission-critical systems. We've already helped many companies consolidate their IT infrastructures and lower their Total Cost of Ownership. Our free white paper, *The Why and How of Server Consolidation*, explains how. Get your copy at www.ftsi.fujitsu.com/ad. Or call (877) 905-3644.

FUJITSU

THE POSSIBILITIES ARE INFINITE

Stretching Tape Technology

Tape is still the main backup medium for most organizations and is likely to remain so for at least another 10 years as vendors prepare faster drives, better management tools and tapes that can hold terabytes of data. **Page 20**



FUTURE WATCH

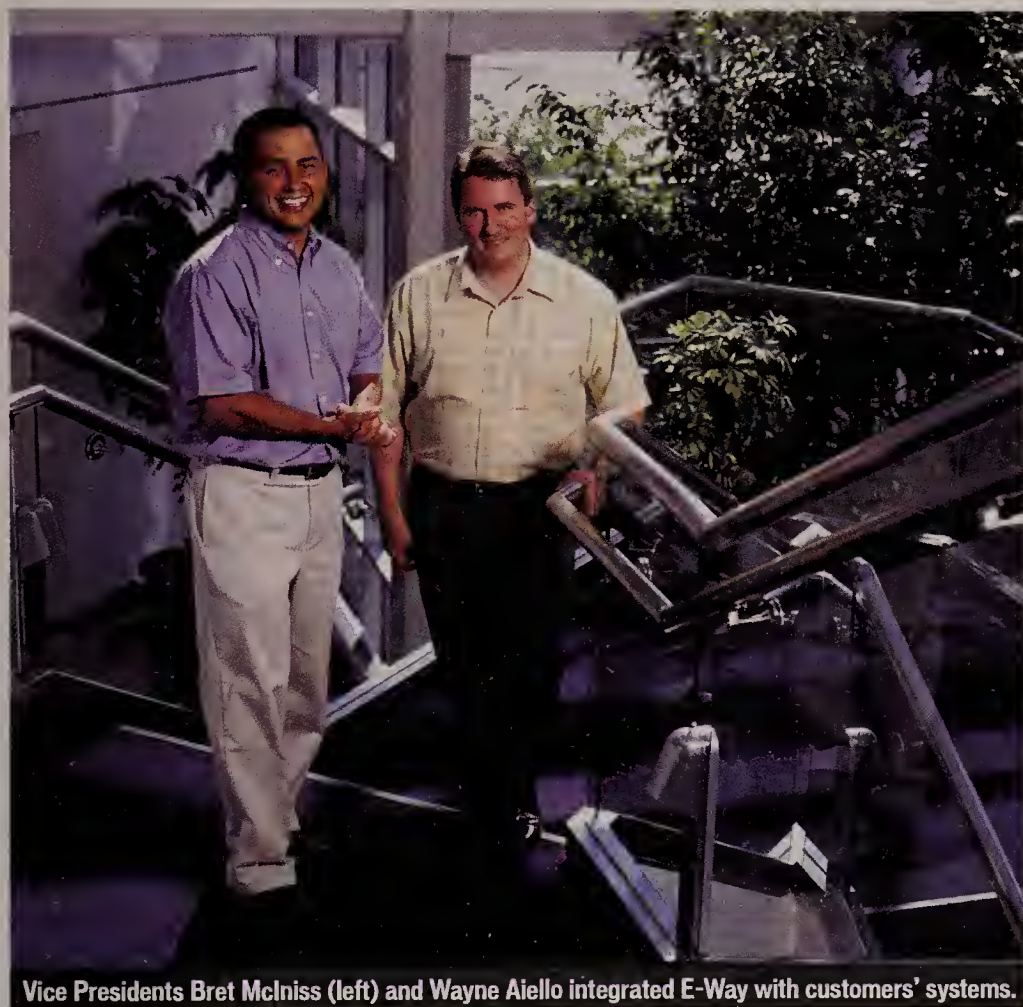
Genoa II: Man and Machine Thinking as One

IT may soon make it possible for humans and computers to “think together” in real time to anticipate and preempt terrorist threats. **Page 22**

SECURITY MANAGER'S JOURNAL

New Spam Policy: Return to Sender

Vince Tuesday's strategy to automatically return suspected spam before it can hit users' mailboxes works perfectly — almost. **Page 23**



WHEN YOU HAVE consolidated computer systems from 500 corporate acquisitions, you get pretty good at IT integration.

Indeed, nothing so distinguishes IT at Corporate Express Inc. as the degree to which it seamlessly links major supply systems — its own and those of customers and suppliers. The \$5.5 billion, Broomfield, Colo.-based vendor of office supplies for the business market has, in essence, become an extension of the procurement systems of its largest customers.

“Integration is one of our core competencies,” says CIO Lisa Peters, who has seen her IT shop grow from 12 people to more than 300 in the past nine years.

Corporate Express has for years taken orders for furniture, paper, computer supplies and other office products by telephone, fax and electronic data interchange. In 1997, it began offering customers Internet-based procurement via a simple CD-ROM catalog. Now, more than half of its 75,000 daily orders arrive electronically, most as

XML transactions through a richly featured Web portal called E-Way.

The smallest of Corporate Express' 30,000 customers, which typically lack their own automated procurement systems, log onto E-Way and conduct purchasing transactions much as a consumer might at Amazon.com. These buyers have also placed many of their unique procurement rules into E-Way, so that, for example, E-Way checks budgets, buyer authorizations and other controls for customers.

FIELD REPORT

But 750 of the company's largest customers — which account for some 80% of its sales volume — have a more direct connection to E-Way. Corporate Express has integrated E-Way into the processing fabric of their internal procurement systems. That involved integrating with some 40 different commercial packages from companies ranging from Ariba Inc. to Commerce One Operations Inc. and eScout LLC. These customers start to build orders locally, but then bridge to E-Way by leveraging the integration features offered by each vendor's product. For example, Corporate Express uses PunchOut for integration with Ariba, RoundTrip for Commerce One, ConnectScout for eScout and so on.

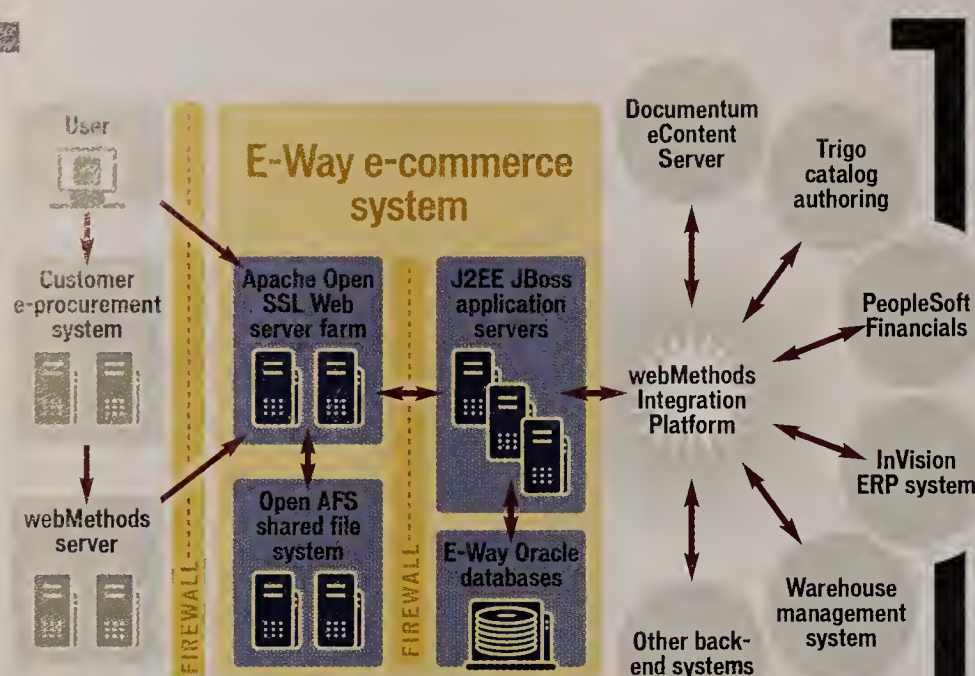
Although customers can maintain their own versions of the Corporate Express catalog, more often the catalogs are maintained by and at Corporate Express. Every catalog is tailored to its user's format, terminology and buying practices.

“E-Way knows all the customer rules — for example, that they don't buy desks from us, so desks will be blocked out,” says Wayne Aiello, vice president of e-business services. “E-Way actually becomes the customer's system, so every customer has to be examined and treated differently.”

Corporate Express is doing about 10 new customer integrations per month. They take 10 to 20 days — with requirements definition, coding and testing taking equal amounts of time — but the first few projects took 10 times that long.

Corporate Express Goes Direct

THE B2B OFFICE PRODUCTS VENDOR IS SLASHING COSTS BY INTEGRATING TIGHTLY WITH CUSTOMERS' PROCUREMENT SYSTEMS. BY GARY H. ANTHERS



The E-Way Architecture

Behind the scenes in the E-Way system, customer orders, acknowledgements, invoices and other transactions flow between customers and E-Way as XML transactions by way of two Internet service providers.

Orders from small and midsize customers that use E-Way as their procurement system go to the E-Way Web server and pass through the webMethods Integration Platform server directly into InVision, Corporate Express' ERP system. Orders from the 750 large customers whose own e-procurement systems have been integrated with E-Way interact with Integration Platform from webMethods.

Integration Platform is the enterprise application integration (EAI) "layer" that ties Corporate Express' e-commerce, ERP, warehouse management and financial systems. After some translating and format standardization, the EAI layer sends the transaction to the InVision ERP system, where it's processed like any other order. InVision sources the order and sends it to its own warehouse or to a wholesaler for pickup and delivery the next day.

E-Way is a three-tier system. At the top sit five Sun Microsystems Inc. Solaris servers running Apache Web server software. Files, such as catalog page im-

ages, are stored on a Linux server and then cached on Solaris Web servers using the Open AFS enterprise file system. The second tier, a JBoss application server, is a combination of JavaBeans and servlets. It shares a big Sun Fire 15K server with the third tier, the Oracle database server running PL/SQL procedures.

Corporate Express is migrating the E-Way application code from Oracle PL/SQL to Java 2 Enterprise Edition (J2EE). That will allow separation of presentation functions from business logic in JavaServer Pages, making code more modular and hence easier to maintain, says Bret McInnis, vice president for e-business technologies. It will also make code more scalable and efficient, he says. The J2EE architecture will use several open-source software tools, such as Struts, Tiles and Velocity - frameworks for developing Java applications that facilitate breaking applications into their functional parts.

Finally, Trigo Technologies Inc.'s Product Center software maintains product catalog information and publishes it to E-Way and other systems. The 4i eContent Server from Documentum Inc. maintains an archive of Web site content, including reports and billing.

- Gary H. Anthes

"The hardest thing three to four years ago was that nobody in the industry had done it," Aiello says. "XML was the buzzword, but it was really new. Platforms like Ariba and Commerce One were beginning to get a lot of hype, but there weren't people who had actually implemented them."

The company buys off-the-shelf software when it can, but much of E-Way

and its other supply systems were developed in-house. Commercial packages often aren't scalable or flexible enough to accommodate the unique needs of customers, the company says. For example, Corporate Express developed its own search engine tailored to the characteristics of an office supply catalog.

Unocal Corp. in El Segundo, Calif., used to buy from Corporate Express by

telephone and fax, but has now integrated its Oracle Corp. procurement system with E-Way. Michael Comeau, e-procurement tools manager at Unocal, says he likes E-Way's ability to send all invoices to a central point for payment, its buying controls and its order-tracking ability. "Maverick spending is reduced tremendously," he says.

Meanwhile, Trisha Smallwood, manager of mail center operations at The Kroger Co. in Cincinnati, says she likes E-Way because it saves her five minutes on every order. No more filling out an order form, faxing it and waiting for confirmation. The process is made even simpler, she says, by E-Way's ability to maintain a list of items that Kroger orders frequently as well as the special prices and terms that the grocery chain has negotiated.

Data, Data, Everywhere

Corporate Express used software from webMethods Inc. in Fairfax, Va., to integrate its major logistics and financial applications. The webMethods tool provides flexibility in deciding where data and logic are best placed, says Bret McInnis, vice president for e-business technologies at Corporate Express.

For example, warehouse inventory balances change constantly, so E-Way makes a synchronous call through webMethods to Corporate Express' custom-developed InVision ERP system to retrieve balances when they're requested by an online customer. But pricing data is more static, so pricing algorithms and data about customers and products that are in PL/SQL procedures in InVision are replicated to E-Way using SharePlex from Quest Software Inc. in Irvine, Calif.

"It basically sniffs the Oracle logs and replicates the data in real time," McInnis says. "We wrap that Oracle code in a JavaBean, so we call the exact same algorithm that InVision calls to get the customer's price."

A performance advantage comes from being able to price an item just when it's needed. Previously, every combination of item price and customer was stored in a table that soon grew to an unwieldy 1 billion rows, he says. Moreover, changes to price, customer and item data can be made in just one place and replicated elsewhere as needed. And use of an integration tool like webMethods effectively allows software to be used in multiple places without rewriting it, McInnis adds.

Optimum placement of data and logic are critical when dealing with a high volume of low-margin transactions, McInnis says. "Performance and scala-

Getting to Real Time

E-Way started out with a much simpler objective. "When it started, it was essentially a one-way order system, an online catalog," says Wayne Aiello, vice president of e-business services. "They'd find a product and send an order into InVision," the company's ERP system.

That has changed, however. "It's transforming itself into a two-way interface between us and the customer," he says, "so as we continue to add more transactions, we are bringing more information from our supply chain forward to the customer."

Corporate Express has a number of supply chain and financial systems, plus interfaces with the systems of its suppliers. Any information from those sources is potentially available to present to customers using the webMethods integration tool. Corporate Express already uses that tool to retrieve real-time inventory balances from its InVision system and send them to customers via E-Way. But if an item isn't in stock, it doesn't tell buyers when it might be on the shelves again. Soon E-Way will also retrieve the item's estimated date of receipt based on the supplier's information system.

Corporate Express also plans to push more order-status information to customers, including who signed for a delivery at the customer site. A point-of-delivery device will capture that data and send it via a service of Aether Systems Inc. to a warehouse management system, where webMethods can grab it and present it to the E-Way user.

- Gary H. Anthes

bility are always huge issues for us," he says. "Our average order size is [small], so it takes a lot of transactions for \$5 million a day on our Web site."

While grabbing data using webMethods is "theoretically easy," Aiello says, optimizing performance is not. "At any point, we have thousands of people on the site placing orders. Making something available to 3,000 users simultaneously is a challenge." ■

MORE CORPORATE EXPRESS

Profit Motive: Electronic orders are the key to profitability - but most savings go to customers:

QuickLink 40920

Searching for Answers: Learn how Corporate Express customized its search engine:

QuickLink 40432
www.computerworld.com

Thursday, August 14 at 4:11 p.m. EDT.

**The grid went down. Our customers did not.
That's why over 85% of the FORTUNE® 500®
rely on VERITAS software for disaster recovery.**

veritas.com


VERITAS™

As backup needs grow, tape vendors are preparing faster drives, better management tools and terabyte-size tape cartridges. **By Lucas Mearian**

LIKE MANY IT EXECUTIVES, Eric Eriksen, chief technology officer at New York-based Deloitte Consulting, would like tape to just go away. The added cost of managing tape backup systems, slow and unreliable restoration, cartridge inventorying and off-site storage headaches have him hoping that cheap disk drives may someday replace 50-year-old tape technology in the data center.

"We only need tape for cases when we can't restore from disk. It's a necessary evil," he says.

Yet despite a drastic shift toward low-cost Advanced Technology Attachment disk arrays for backing up business data, there's no end in sight to the use of tape in the data center — especially for archival storage. Administrators may complain, but tape still has an enormous installed base and remains 10 to 50 times less expensive than disk. It's also very secure, since data stored off-line on removable media is physically inaccessible to hackers and viruses.

And vendors and analysts say evolu-

tionary advances in the basic technology in midrange tape drive systems, improvements in management tools, and the emergence of combined disk/tape subsystems are likely to answer some user complaints — and keep tape technology in data centers for at least another decade.

Bigger and Faster

Manufacturers of the three leading midrange tape drive technologies — digital linear tape (DLT), linear tape-open (LTO) and advanced intelligent tape (AIT) — are preparing significant capacity and speed improvements. Advanced drives, including SuperDLT (SDLT), SuperAIT (S-AIT) and LTO Ultrium 2 (LTO-2), are the latest variations. Each uses half-inch tape and offers roughly five times the capacity and performance of standard DLT, AIT and LTO tapes [For a more detailed explanation of these technologies, go to QuickLink 40422].

For example, DLT was developed in 1986 and the average cartridge originally held about 96MB of data. SDLT today holds 160GB. Over the next

decade, SDLT will grow to about 2.5TB native capacity with 250MB/sec. throughput. LTO, which derives its name from its open architecture, could grow to 10TB native capacity by 2011.

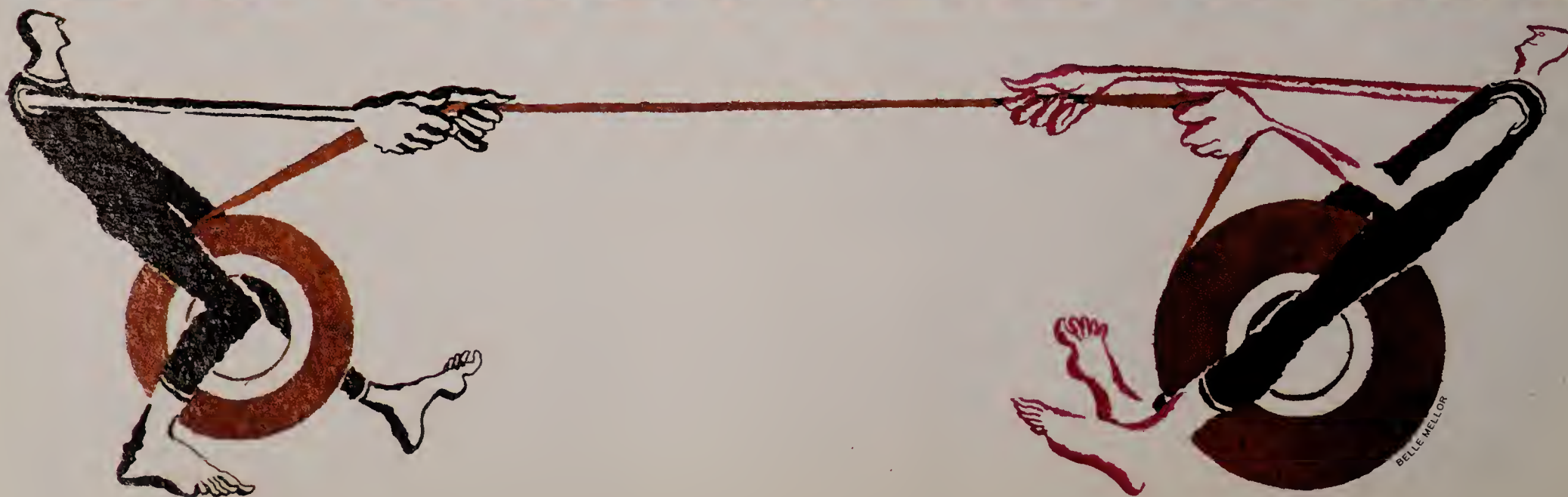
Vendors say 1TB tape cartridges could appear as early as next year. Tape manufacturers such as Quantum Corp., Certance LLC and Storage Technology Corp. expect tape to more than meet future needs. That's a tall order, since the amount of data produced by the average enterprise is doubling every year, according to Stamford, Conn.-based Gartner Inc.

To keep up, tape media will evolve to have more than 1,000 tracks and a thickness of 6.9 microns (about as thick as cellophane). And it will also work with drives that write on both sides of the tape, says Jeff Laughlin, director of strategy for the automated tape solutions unit at StorageTek in Louisville, Colo.

In contrast, StorageTek's current high-end tape drive, the proprietary T9940B, uses 200GB, one-sided tape that has 576 tracks and is 9 microns thick. Laughlin expects transfer rates to keep up with the larger capacity tapes as well. "There's more money being spent on tape media research than ever before in history. You're going to see greater transfer rates at the head interface, transfer rates of 100GB/sec., 200GB/sec.," he says.

TAPE TECHNOLOGY

Stretches Out



Choosing the Right Format

Will the SDLT, LTO-2 or S-AIT tape drive technology you're using today be around tomorrow? Most likely, vendors and analysts say, although some users are finding reasons to switch from one format to another.

Even with software advances in SDLT, more users are buying LTO-2 drives these days. Bob Amatruda, an analyst at Freeman Reports in Ojai, Calif., says LTO-2 appeals to users because its open architecture offers a choice of vendors. Hewlett-Packard Co., IBM and Costa Mesa, Calif.-based Certance all manufacture LTO-2 products, whereas only Quantum produces DLT and SDLT drives.

In July, Quantum put self-diagnosing intelligence into its SDLT drives, a move that analysts

say will help boost sales. Quantum also says it has plans for at least four more incarnations of SDLT, and the vendor has 31% of the overall tape market – more than any of its competitors.

But John Pearring, president of StorServer Inc. in Colorado Springs, a manufacturer that sells all three tape technologies, still gives LTO the edge. "LTO is open and makes more sense, and it's 200GB native [vs. 160GB for the latest SDLT 320 drives]," he says.

Deloitte's Eric Eriksen says he's looking at moving from four HP tape libraries, with eight SDLT drives each, to a single HP or ADIC Scalar 10K tape library using LTO drives for greater capacity in a smaller footprint. He says his decision isn't being driven so much by LTO-2's open-

ness, but by its compression rates and speeds, which – for the moment – exceed those of SDLT. He also says that the new LTO-2 libraries are more scalable than his older system.

"One of the things that's important when we're doing streaming across multiple tape drives is to be able to restore quickly," he says, referring to LTO-2's 200GB capacity and 35MB/sec. throughput.

That doesn't matter to Phil Andrews, director of high-end computing at the supercomputing lab at the University of California, San Diego. He has avoided LTO Ultrium because he says it lacks the track record of reliability that he requires. "We've looked at LTO, but we have to be conservative because we're holding a lot of people's data here," he says.

And while LTO has a capacity and performance edge over SDLT today, analysts say the

two tape technologies continuously leapfrog each other in capacity and throughput, so other factors may be more important.

SDLT and LTO-2 may be neck and neck in speeds and feeds, but Sony Electronics Inc.'s S-AIT leapfrogged both with the vendor's introduction of a 500GB, 30MB/sec. drive in December – and it's likely to remain ahead for some time, based on current SDLT and LTO road maps (see graphs, below).

S-AIT also has the edge in pricing: S-AIT tape cartridges are \$80, vs. \$120 for LTO-2 and \$130 for SDLT. Sony intends to develop and support S-AIT through at least a sixth generation, says Stephen Baker, vice president of storage solutions at Sony in San Jose. But S-AIT's appeal has been limited because, as with SDLT, only one manufacturer produces the drives.

– Lucas Mearian

Smarter

Emerging management software that can monitor the health of tape drives, Fibre Channel switch port connections to libraries and even the tape cartridges themselves will help ensure that users are able to restore from tape, more easily manage backups and predict problems and backup failures, vendors say. Advanced Digital Information Corp. (ADIC) and Quantum, for example, have recently introduced native management software tools on their tape library and drive technology.

ADIC sells all major tape cartridge technologies in its automated libraries and tape autoloaders, but Dave Uvelli, an executive director at the Redmond, Wash.-based company, says he believes cartridge formats and drive technologies are becoming irrelevant. Instead, ADIC is betting on new, intelligent tape library systems that will eventually provide detailed information on drives and tape, whether it's related to a downed switch port, a stuck drive or a tape cartridge that's reaching the end of its life.

One example of archival intelligence is ADIC's Scalar i2000 tape library. Introduced in early July, the Scalar i2000 is designed to eliminate the need for an external library control server. Among other things, the system can send backup failure alerts via pager or e-mail, partition a library into multiple logical libraries and perform mixed media, performance and proactive system readiness checks.

In July, San Jose-based Quantum also introduced DLTsage, a suite of predictive and preventative diagnostic tools

that run on its SDLT tape drives to help ensure that backups have completed successfully. The applications can also tell administrators when drives have reached critical thresholds for capacity and predict where and when errors may occur.

Here Come the Hybrids

While disk-to-disk backup is already popular, during the coming year, manufacturers plan to introduce more hybrid systems that combine disk with tape libraries in storage-area networks for faster backups and restores and easier archiving. ADIC, for example, plans to introduce a combined tape/disk library this month.

"You won't just have tape. One could imagine RAID-protected disk where I/Os from the backup job are completed at [wire] speed while the [library] robot, through management software, stages it on tape drives for archival," says StorageTek's Laughlin.

Ultimately, however, scalability and restorability will continue to be the key criteria to take into account when selecting tape systems, says Deloitte Consulting's Eriksen. "We're looking for a single solution that can cover everything, regardless of the needs we have," he adds. ▀

TAPE VENDOR LINKS

To get a sampling of vendor offerings for SDLT, S-AIT and LTO-2 tape drives, go to our Web site:

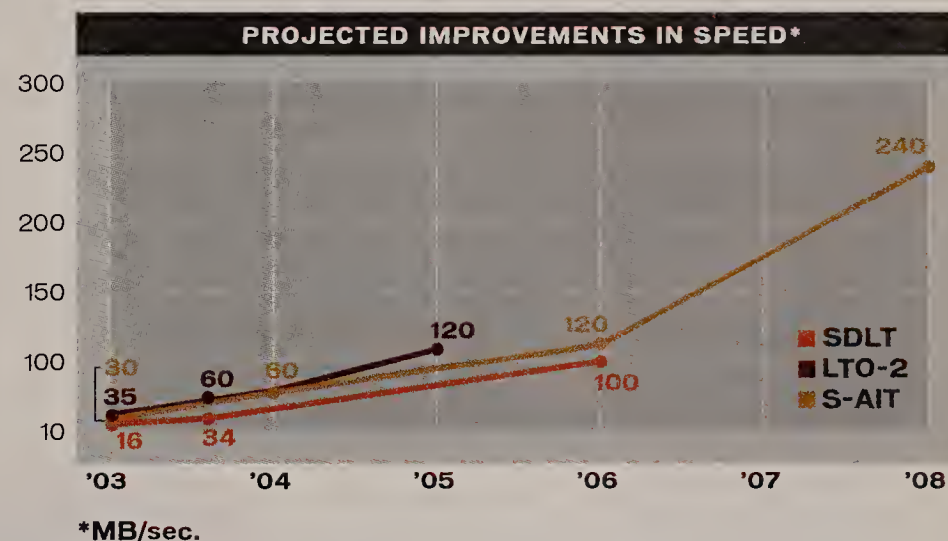
QuickLink 40571

To learn more on this subject, visit our Storage Knowledge Center:

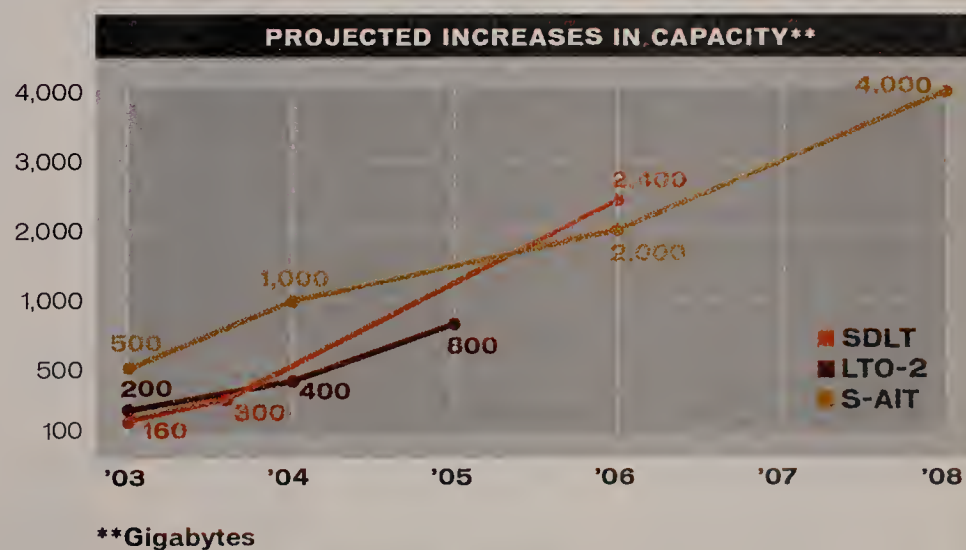
QuickLink k1700
www.computerworld.com

MARKET WATCH

Tape Gets Faster...



... As Cartridge Capacity Grows to Terabytes



SOURCE: QUANTUM CORP., LTO CONSORTIUM, SONY ELECTRONICS INC.



Some of the technology shown in last year's blockbuster movie *Minority Report* may soon be a reality and a centerpiece of the intelligence community's war on terrorism. In the futuristic thriller, Tom Cruise played the head of a police unit that uses psychic technology to arrest and convict murderers before they commit their crimes.

Research into new intelligence technology is taking place as part of a \$54 million program known as Genoa II, a follow-on to the Genoa I program, which focused on intelligence analysis.

In Genoa II, the Defense Advanced Research Projects Agency (DARPA) is studying potential IT that may not only enable new levels of collaboration among teams of intelligence analysts, policy-makers and covert operators, but could also make it possible for humans and computers to "think together" in real time to "anticipate and preempt terrorist threats," according to official program documents.

"While Genoa I focused on tools for people to use as they collaborate with other people, in Genoa II, we also are interested in collaboration between people and machines," said Tom Armour, Genoa II program manager at DARPA, speaking at last year's DARPA-Tech 2002 conference in Anaheim, Calif. "We imagine software agents working with humans... and having different sorts of software agents also collaborating among themselves."

Genoa II may be shelved because of its central role in the controversial Terrorism Information Awareness program, but private-sector researchers say many significant advances are still possible and are, in fact, already happening.

For example, private-sector researchers are studying cognitive amplifiers that can enable software to model current situations and predict "plausible futures." Researchers are also on the verge of creating practical applications to sup-

port cognitive machine intelligence, associative memory, biologically inspired algorithms and Bayesian inference networks, which are based on a branch of mathematical probability theory that says uncertainty about the world and outcomes of interest can be modeled by combining common sense with evidence observed in the real world.

Anticomplexity

The goal of all of this research is to find a way to make computers do the one thing they aren't very good at: mimicking the human brain's ability to reduce complexity. Computers are good at doing things like playing chess but are incapable of "seeing" and deciphering a word within an image. Biologically inspired algorithms — the mathematical underpinnings of cognitive machine intelligence — could change that.

"One way to make computers more intelligent and lifelike is to look at living systems and imitate them," says Melanie Mitchell, an associate professor at Oregon Health & Science University's

School of Science & Engineering in Portland and author of a book on genetic algorithms. "People have already done that with the brain through neural networks, which were inspired by the way the human brain works."

"In the brain, you have a huge number of simple elements — neurons — that are either on or off and are working in parallel. And in ways that are still fairly mysterious, that seems to collectively produce very sophisticated learning," says Mitchell.

But there are other exam-

ples of astounding possibilities, all of which have potential applications in the war on terrorism. For example, Mitchell points to ongoing studies in genetic algorithms that are inspired by evolution — a computer program that evolves a solution to a problem rather requiring a person to try to engineer one. Likewise, researchers are beginning to produce security applications that mimic the human immune system, she says.

Hurting Forward

Despite formidable technological challenges, there have been successes that could become real products and applications in the next 12 to 24 months. One of those successes has been in the development of inference networks.

"Some of the core algorithms we are working with have been around for centuries," says Ron Kolb, director of technology at San Francisco-based Autonomy Inc., a firm that makes advanced pattern-recognition and knowledge management software.

"It's just now that we're finding the practical applications for them."

For example, Autonomy uses a proprietary blend of Bayesian statistics and Claude Shannon's Information Theory, which says it's possible to separate critical elements of information from large streams of audio data, to produce algorithms that are making computers smarter and able to learn.

"We're able to produce an algorithm that says here are the patterns that exist, here are the important patterns that exist, here are the patterns that contextually surround the data, and as new data enters the stream, we're able to build associative relationships to learn more as more data is digested by the system," says Kolb.

The computers of tomorrow will also know when two or more intelligence analysts are interested in or working on the same problem and will automatically link those analysts and their data, he says.

In fact, many automotive and aerospace manufacturers have used rudimentary pieces of this type of capability and have saved millions of dollars by leveraging developmental expertise across functional areas, says Kolb. Likewise, such computers could be able to spot a person leaving a suspicious bag at an airport and automatically alert security. "We're no longer looking for information, information is looking for us," Kolb says.

But Grant Evans, CEO of A4Vision Inc. in Cupertino, Calif., and an expert in cognitive machine intelligence and biologically inspired algorithms, says he thinks he has an idea of where it's all leading. "The algorithms today, particularly biometric algorithms, are very intuitive, meaning the more you use them, the more they learn," says Evans. "Now we're integrating cognitive machine intelligence in the form of video with avatars [3-D digital renderings of real people] that can see and track you. That's the computer of the future." ▀

GENOA II: Man and Machine Thinking as One

Can software algorithms predict a terrorist's next move before he makes it? By Dan Verton



New Spam Policy: Return to Sender

Kicking back suspected spam dramatically reduces unwanted e-mails, but not before creating an endless loop of confusing messages. By Vince Tuesday

WE'VE been trying to control the problem of spam, and at long last, we can see light at the end of the tunnel.

My security team and I already use an outsourced service that identifies spam and labels each message accordingly. It does a surprisingly good job, but most users still read every spam-labeled message, even though only one in 10,000 e-mails is incorrectly marked.

Last week, we implemented the next phase: We reconfigured our e-mail gateway to return spam to the sender.

Now the end user never sees any e-mails identified as spam. Instead, we send those e-mails back to the return address and give the sender instructions on how to be added to the "allowed" list. This process uses fax rather than e-mail, so it costs senders time and effort. But we figure that if they are legitimate business users, they'll follow this simple process.

Just over half of our daily e-mail is spam, so returning it saves enormous amounts of disk space and e-mail server processing power.

A Rare Thank You

Seven days into using the new system, it's working like a dream. We've had no complaints, and a handful of users even phoned to say thank you — a pretty rare experience for my team.

We've sent back hundreds of thousands of messages, and only one sender asked to be

added to our allowed list. That's a near-perfect record.

But we've had some problems. Here's one: We send our returned messages from a special not_read@company.com e-mail address. We were initially worried that by doing so we might inadvertently create e-mail loops.

Some of the spam comes

from semilegitimate companies that use a genuine source address and have an autoreply on that address. We worried that our returned spam would cause

them to send us an autoreply that would be marked as spam and returned to them, which, of course, they would reply to with another message that we thought was spam and so on. So we put in a rule that if the incoming e-mail is addressed to not_read@company.com and is marked by the antispam company as spam, then our rule discards it instead of sending another alert.

Since it's likely that many of the return addresses on spam e-mails are fake and that innocent users will receive our replies, we made sure our responses were polite. In fact, half the messages

we returned bounced. This means that the not_read account gets pretty busy. But after this week of bedding in, we really won't read messages sent to it. Instead, we will just delete them.

We thought we had covered all the fairly obvious problems pretty well, but we hadn't thought of everything. I was surprised to come in one day to find that the team that monitors the postmaster e-mail account was unhappy with us.

Endless Autoreplies

Our system's autoreply to a spam from an online catalog vendor had received a reply from that vendor's autoreply system, and our postmaster account had received tens of thousands of messages overnight. It seemed that somehow we had created a loop that included the postmaster account.

As with most Web sites, our postmaster account is read by a real person. This gives administrators a way to contact other administrators to troubleshoot problems with the e-mail system itself.

In our case, for some reason the postmaster account had replied to every message sent to not_read, and that account was getting autoreplies back from the online catalog company. But the not_read account wasn't receiving any of these messages, so it was difficult for us to investigate.

We looked into all kinds of bizarre theories. Perhaps our e-mail was being spoofed by a spammer to get back at us? Perhaps our outsourced service was blocking them because of the number of messages to and from this account? It was frustrating. Then I began to think about why an e-mail in-box wouldn't have any new mail in it. I asked the

team, and one of them suggested that it might be full.

I could only laugh, because that was the sort of question we should have asked at the beginning, not after we had wasted our time investigating wild theories. The not_read mailbox had filled up with all the rubbish being returned, and the postmaster account was returning every subsequent e-mail sent to not_read to the sender. But every message returned to the catalog company received an autoreply to the postmaster account.

Once we deleted all the old messages in not_read, we stopped the problem. But it was a bit embarrassing to know that our antispam system had spammed our own e-mail administrators.

I do feel guilty about pushing the problem of sorting through the spam back onto the sender. It would be better if everyone was civilized and we could trust them to send only things we want. But we have to pay to receive spam that uses up our network bandwidth, e-mail server resources and the recipient's time, so I feel justified in forcing the senders of e-mails that look like spam to jump through a few hoops.

A handful of spam messages still get through each day. And already, our users have acclimated to the dramatically lower levels of spam and are complaining that even this reduced level is unacceptable. It's good that we're being pushed to always improve, but I hope we can convince users that this current level of control is right for the issues that spammers pose now. Maybe, just maybe, it will hold until new laws are passed and enforced and spamming finally drops away. ▀

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum: [QuickLink a1590](#). To find a complete archive of our Security Manager's Journals, go online to [computerworld.com/secjournal](#)

SECURITY LOG

Security Bookshelf

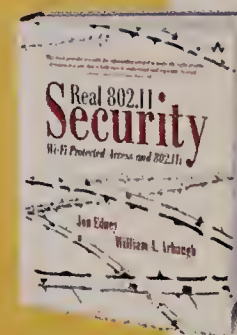
Real 802.11 Security: Wi-Fi Protected Access and 802.11i, by Jon Edney and William A. Arbaugh, Addison-Wesley, 2003.

The promise of wireless LANs has been delayed by inadequate security technology to the point where WLANs have become synonymous with security weaknesses. This book explains what's wrong with the Wired Equivalent Privacy protocol and what the industry has done to fix the major problems in introducing the standards Wi-Fi Protected Access and 802.11i, which specifies the use of the Temporal Key Integrity Protocol and the Advanced Encryption Standard. This book provides superbly detailed guides to building wireless services securely and includes a fully working example using free software. This is a good handbook for WLAN administrators who want to avoid the security pitfalls that have hampered wireless networks so far.

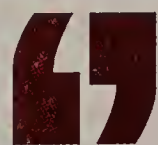
— Vince Tuesday

Device Provides Key Storage for Windows 2003

nCipher PLC, a Cambridge, England-based security firm with U.S. headquarters in Woburn, Mass., last week upgraded its line of hardware-based cryptographic key management products with a new device featuring support for Microsoft Corp.'s Windows Server 2003. The product is compliant with the Federal Information Processing Standard (140-2) and will give users a tamper-resistant environment for storing and managing cryptographic keys used to secure Windows Server 2003 and .Net environments, nCipher says. The company's boxes range in price from \$5,800 to \$19,500.



**SECURITY
MANAGER'S
JOURNAL**



Our antispam system had spammed our own e-mail administrators.

SHARP®

Digital Document Security and IT: Everything you need to know.

Q: What are the most significant digital copier security issues?

A: Various copier print controllers are actually servers that queue and permanently store multiple document files, providing administrator access to the documents. At a minimum, most digital copiers retain the last document processed; some even retain multiple documents totaling hundreds of pages. Others redirect print jobs when the printer is busy or jammed, making "denial of service" attacks possible.

Q: How does Sharp protect the network interface?

A: The Sharp Ethernet card allows administrators to restrict access and disable unnecessary protocols. With this network card, the Sharp digital copier is essentially protected by its own firewall.

Q: How can you be sure that security products actually perform as claimed?

A: The Common Criteria program—administered by the U.S. National Security Agency and the National Institute of Standards and Technology—evaluates security solutions. Products that are validated under the program meet security levels consistent with ISO 15408 methodology.

Q: How can Sharp improve IT security?

A: Sharp offers print privacy solutions designed to restrict unauthorized personnel from seeing confidential materials. Copier access can be controlled and monitored, while documents retained in printer/copier/scanner/fax memory are immediately cleared to eliminate unauthorized access.

sharpusa.com

be sharp™

©2003 Sharp Electronics Corporation.

PAUL A. STRASSMANN

The Curse of IT Infrastructure

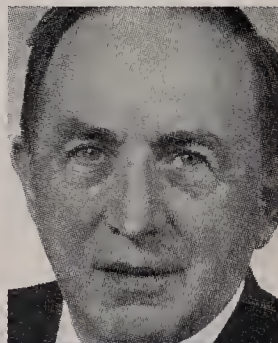
IN JULY, the General Accounting Office published what I consider a rare insight into IT spending. The agency broke down the \$26 billion Department of Defense IT budget into the following categories: business systems, \$5.2 billion; business infrastructure, \$12.8 billion; mission support (including its own separate infrastructure), \$8 billion.

Less than half of the total cost is accounted for by the share of spending that directly and visibly supports users. The lion's share goes toward the "infrastructure" — the hole from whence bugs, disruptions and mysterious failures come.

Here we have an audit confirming what I have seen creeping up on IT for more than 20 years: It isn't the applications but the need to support a costly infrastructure that has been dampening the funding for technological innovation.

You can always get votes for adding another attractive application. But hardly anybody will sign up to support an infrastructure that may be serving customers who aren't paying their way. Selling tickets for seats in fancy rail cars was always easy. Finding money to pay for the track, switches, signal equipment and the fuel depot was always much harder.

The root cause of IT failures and excessive IT costs in large organizations lies in rickety infrastructures put in place one project at a time. What you usually have in large organizations is not a secure, low-cost and reliable infrastructure but a patchwork of connections cobbled



PAUL A. STRASSMANN
(paul@strassmann.com)
has concluded that the best way of presenting a business case for IT investments is to make it a discretionary variable expense.

together without sufficient funding and rushed to completion without sufficient safeguards.

The currently fashionable approach is to impose centrally dictated "architectures" to cure the pains from incompatible and redundant systems. Such architectures are just another way of achieving order through centralization and consolidation. Unfortunately, under rapidly changing conditions, such a

cure may be worse than the original disease.

Invariably, centralization involves the awarding of a huge outsourcing contract to a vendor for whom a critical piece of the infrastructure is carved out, such as the management of desktops. Associated servers, switches and data centers may also be included in the IT territory ceded to the outsourcer, while the resident IT bureaucracy always keeps tight control of a few fatally critical components in order to retain its absolute power.

This approach to fixing infrastructure deficiencies is flawed because the sequence for fixing a broken set-up is backward. Contracting for an infrastructure should be the last — not the first — step in putting improved systems in place.

First, IT managers should focus on determining which applications must be delivered immediately. The reliability, affordability and timing of application services will dictate which one of the many conceivable infrastructures would work best to solve high-priority problems.

Second, the organization's management structure and business goals must be set. I don't see how one can get funding for overhauling infrastructure as a separate investment. As a credible business case, such investments offer notoriously sterile ground. Infrastructures must be designed so that each step can be financed with incremental funding. Such economics make outsourcing of infrastructure services to a computing "utility" the preferred solution. The recent huge wins by a computer services firm offering "on-demand" usage pricing is a good sign that customers are ready to buy computing "by the quart" instead of owning a farm.

Third, a feasible transition plan for legacy applications must be developed and tested prior to making the least risky technical choices.

Only after the completion of this sequence would it be safe to proceed with outsourcing. Precipitous contracting for infrastructure services is only for the hasty and the impatient (who will be long gone when the auditors finally show up). ▀

WANT OUR OPINION?

For more columns and links to our archives, go to www.computerworld.com/opinions



*Trends in Proprietary Information Loss Survey (ASIS 2002). ©2003 Sharp Electronics Corporation.

How secure is your digital information?

Protect your information with the Data Security Kit from Sharp. Financial facts, personnel records, customer lists: networked copiers/printers process sensitive information every day. Unfortunately, their hard drives can also be accessed via the network, contributing to \$60 billion worth of information theft every year.* To protect this weak link in your

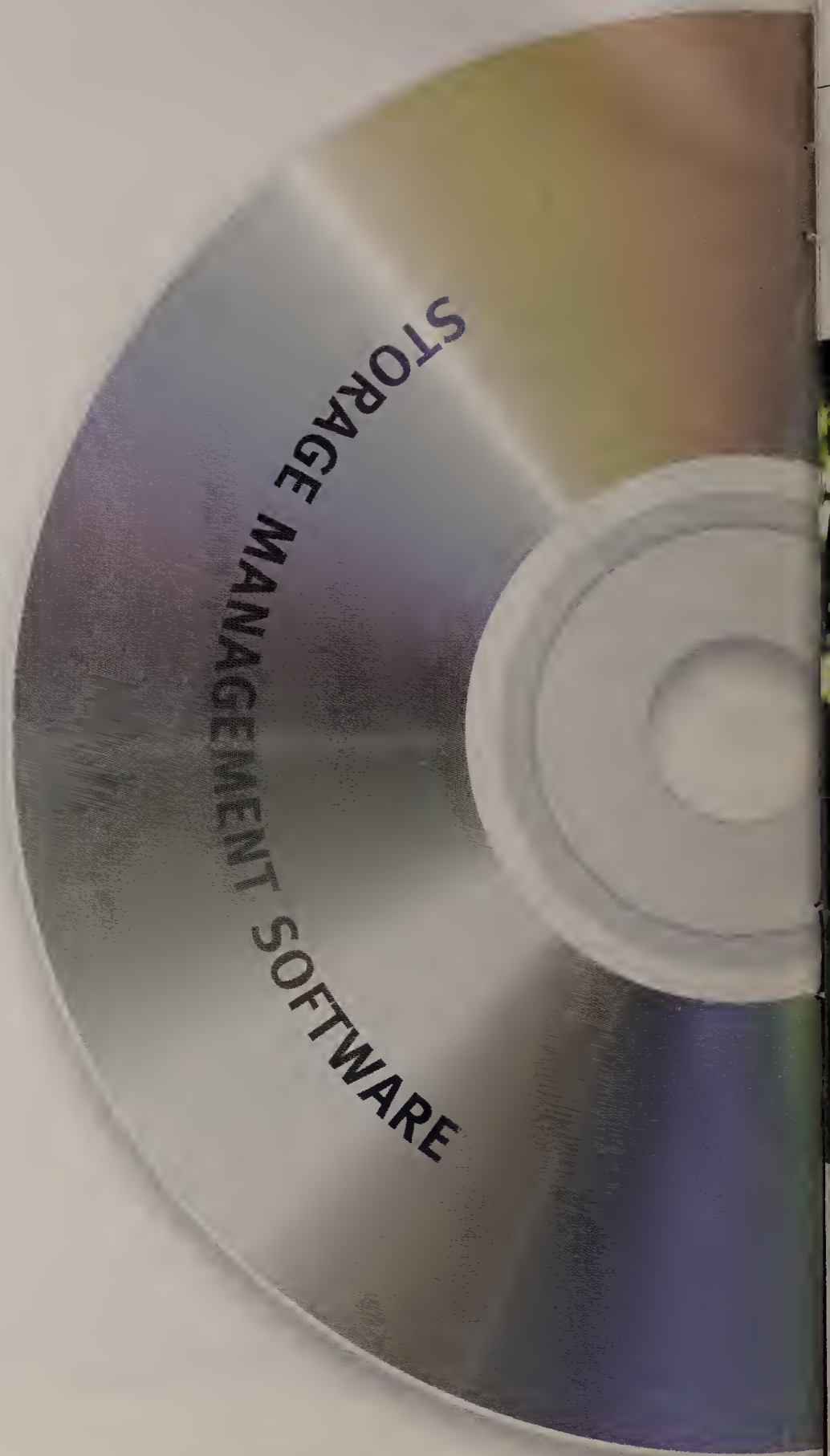
corporate security, we've created our Data Security Kit. It's the first copier and printer protection to be validated by Common Criteria, a government-sponsored program, and it's available only with our Digital IMAGER™ series of copiers/printers. Sharp's Data Security Kit. Enhanced information protection at your fingertips. sharpusa.com/security



SHARP | be sharp™

DID YOU KNOW THAT SOME OF OUR
BEST STORAGE PRODUCTS COME
ON A DIFFERENT KIND OF DISK?

**OUR SOFTWARE GIVES YOU SOME
VERY SMART CHOICES.**



To manage complexity, you've got to outsmart it. EMC Automated Networked Storage™ delivers the software that automates management of your multi-vendor storage infrastructure, including the most error-prone tasks such as monitoring and provisioning. Now you can gain a unified, end-to-end view of your entire environment. Define your service levels. And run an agile, active infrastructure that helps the business pounce on opportunity.

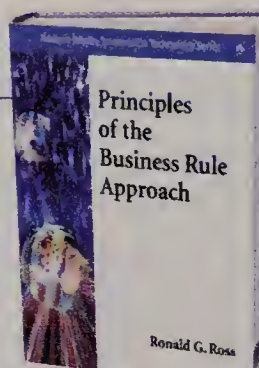
See how other companies are using EMC Automated Networked Storage to manage more information with less effort at www.EMC.com.

Global Toolbox

Managers try various tools — including videoconferencing and distributed software — to help keep tabs on offshore contractors. **Page 29**

Business Rules Come First

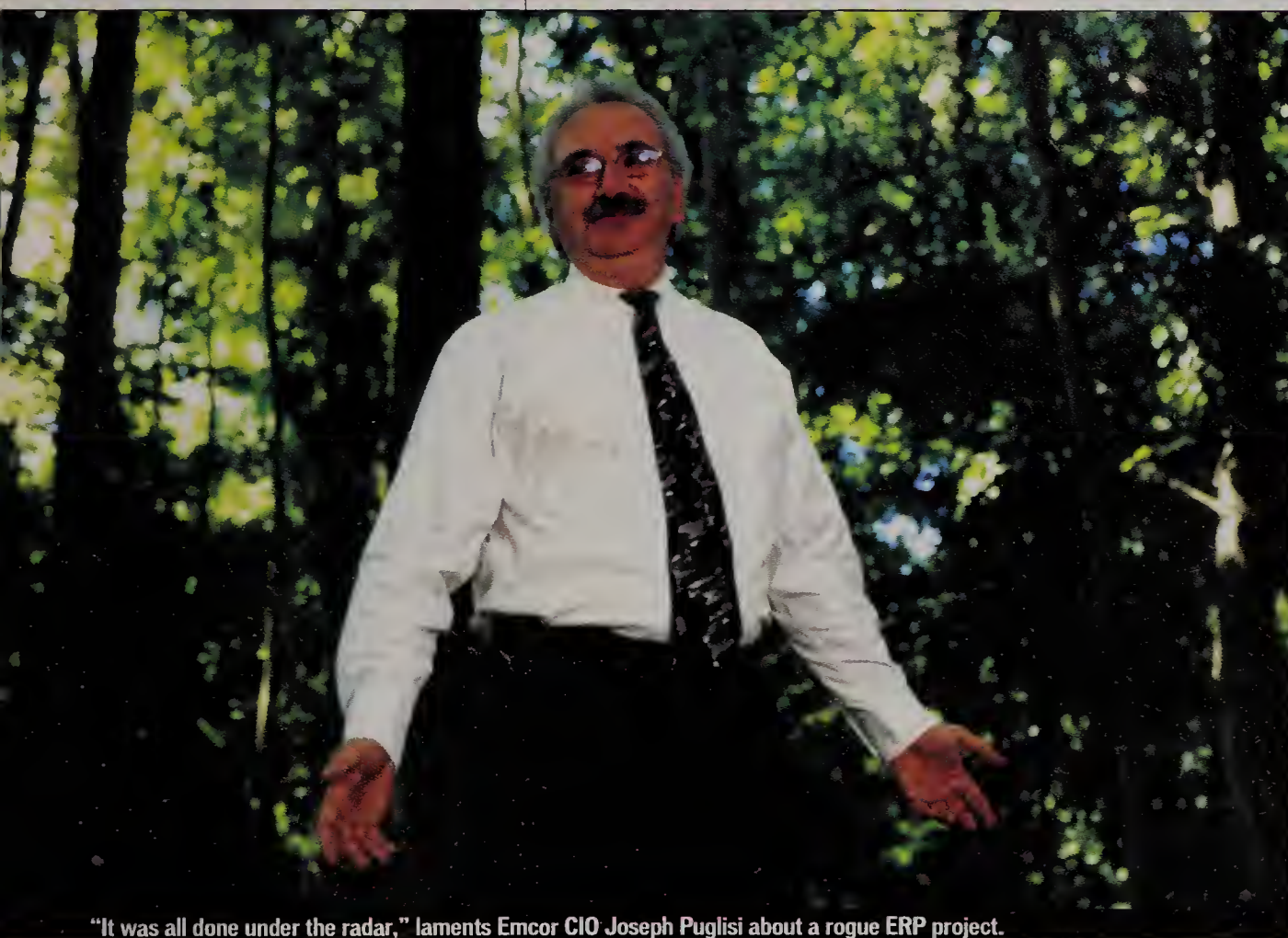
Don't start an IT project without a clear set of written rules about the way your company conducts business, advises Ronald G. Ross in this excerpt from *Principles of the Business Rule Approach*. **Page 30**



QUOTE OF THE WEEK

“The technology that you create bears the marks of your team just as a stone ax shows the marks of an ancient flintknapper.”

— Paul Glen, *Computerworld* contributing columnist and principal of C2 Consulting.



“It was all done under the radar,” laments Emcor CIO Joseph Puglisi about a rogue ERP project.

DEALING WITH Rogue IT

Bootleg IT projects are going on behind your back. Here's how to cope.

BY GARY H. ANTHERS

CIO JOSEPH PUGLISI says he had no idea the IT project was going on. And, he says, the Emcor Group Inc. business unit installing the ERP package had no idea it had selected a product that Puglisi had earlier reviewed and panned. “Ultimately, the project was a disaster,” he says.

“It was all done under the radar,” Puglisi explains. “They spent more than a year fumbling along trying to make it behave in a way that would suit their business. Finally, they did ask for corporate guidance, but they had to get on bended knee

and plead for funding to displace that failed implementation effort.”

It might have been otherwise at the Norwalk, Conn.-based construction and facilities management company. “Had they come to us, we would have said, ‘Here are the choices that we think are contenders,’ ” Puglisi says. “We’d have helped them choose one, helped write the scope of work, identified consultants, identified hardware and generally played a significant advisory role.”

Systems projects done without the knowledge or oversight of the IT organization, so-called rogue projects, may spring up because users see IT as a source of red tape or excessive cost. Or because they’re looking for temporary or quick-and-dirty systems that they see as low-risk. Or they don’t see the IT implications of what appear to be non-IT projects. Whatever the reason, rogue projects often have unintended consequences. Things can get hurt — budgets, schedules, business unit operations, careers and sometimes the corporate systems that IT does maintain.

Most IT executives admit that rogue projects go on in their companies (see *Computerworld* survey, next page), but there’s considerable disagreement as to whether the practice should be snuffed out or facilitated. In any case, CIOs employ a wide range of strategies for dealing with these bootleg projects.

Not Enough Cops

David Swartz, CIO at George Washington University in Washington, says rogue projects aren’t all bad. The danger comes, he says, when a small, isolated system grows into an enterprise application without the careful stewardship of IT.

It all started innocently enough at the school, Swartz says. An administrative department asked AT&T Corp. to develop a debit card system that students could use to buy meals and other things. IT wasn’t involved. Soon someone realized that the card system could be expanded to control access to parking, and then access to buildings. “More and more user departments piled on, and it became an enterprise application,” Swartz says.

At least he saw it coming. “I reviewed their procedures and controls. They had no backup, no redundancy. If the server failed, guess what — not only can you not get into the parking lot, you can’t get into the building, and you can’t buy food. The university shuts down.”

Based on that review, Swartz persuaded the university to give him the back end of the system, the operational side. But before he could put in his controls

COMPUTERWORLD EXCLUSIVE SURVEY

The vast majority of the 108 IT professionals surveyed said rogue IT projects and unauthorized products are a fact of life in corporate America.

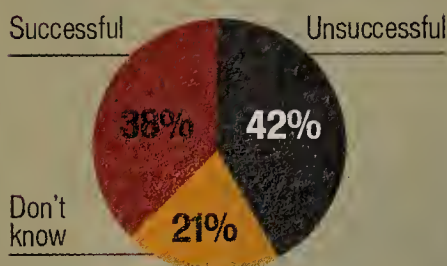
■ **90%** said there are computer projects under way in their companies that don't involve the IT department.

■ **58%** said their companies have policies that bar significant IT projects from being undertaken without IT department approval or control.

■ **86%** said IT products are being installed in their companies without the authorization or support of the IT department.

METHODOLOGY: Computerworld solicited responses to an online survey from Aug. 5 to Aug. 10, 2003. A total of 108 completed surveys were collected. Respondents came from both management (38%) and technical staff (51%) areas of IT, as well as contracting/consulting (11%).

IT projects done outside the IT department tend to be:



NOTE: 106 responses to this question; total doesn't equal 100% because of rounding.

What types of unauthorized products are being installed?

PC software	32%
PC hardware	24%
Linux	15%
Wireless	15%
Apple/Macintosh	6%
Other	8%

NOTE: Multiple responses allowed

and protections, the server did go down and stayed down for a day. "They had to station policemen in all the buildings," Swartz says. "But we have 80 buildings, and there weren't enough police, so we had to station other employees to guard the buildings."

And that wasn't the end of it. Problems persisted because the user departments had kept the application development side of the system. "They upgraded the software without testing it, and that caused all kinds of outages and problems," Swartz says. "Now they are moving the application side to us as well."

In the wake of that debacle, senior university management decreed that a policy on rogue IT be developed. Among other things, it will stipulate that any application that spans more than one department must be owned by central IT, Swartz says.

The Phase Matters

John Ounjian, CIO at Blue Cross and Blue Shield of Minnesota, looks not so much at the organizational scope of an IT project as whether it's in the assessment, design or development stage. Users may conduct the assessment phase of a project, even a large and complex one, on their own. But in the later phases of a project, even a tiny one such as the installation of a single PC, IT must be involved.

"I have a higher tolerance for rogue projects in the assessment phase," Ounjian says. "IT shouldn't be so paranoid. The business area really has the accountability in terms of what needs to be done, and IT has the accountability for how it's implemented."

Geisinger Health System in Danville, Pa., has largely mitigated the risks from bootleg projects by placing IT staffers in the user departments where these projects might occur. "We have people who support laboratory sys-

tems in the same physical location as the laboratory management people. Same for radiology, same for the business office," says CIO Frank Richards.

That's a good model for a company with a lot of specialized equipment with hooks into IT, Richards says. "The business units have learned over the years that it's better to have us involved upfront, because sooner or later, they are going to want to connect whatever it is, such as a piece of radiology equipment, to the network, and they can't do that without us," he says.

Richards says a department recently wanted to buy a physician-reporting system but hadn't worked closely with central IT. "We said, 'No, no, no, we really have to go through a process here, do a needs assessment, look at the ROI and look at how it fits into your workflow.'"

Indeed, workflow turned out to be a problem. The system would have greatly reduced the time it took an examining physician to create diagnostic reports, "but they didn't have the staff to turn the rooms fast enough to get the doctor to see the next patient," Richards explains. "It was very eye-opening for them to realize that even though we don't know clinically what they do, we understand workflow and can help them translate that into what the system will and won't do."

Times Are Changing

Greg Schueman, chief technology officer at Mercury Insurance Group in Los Angeles, says the definition of rogue technology is changing, and IT departments should change with it.

"Having IT be the absolute gatekeeper and owner over everything isn't

FROM THE OTHER SIDE

Chris Tucci says he had to resort to trickery to get IT requests past the central IT department. "If we knew they'd approve a printer, for example, then we'd spec out a computer as 'printer-support equipment.' Sometimes you have to run a smoke screen to support your objectives."

Tucci was a contractor hired by end users at Idaho National Engineering Laboratory in Idaho Falls, and his objective was to meet his users' needs, no matter what.

"We had customers coming to us and saying, 'I need to do this,' and we'd approach the on-site IT people and they'd say, 'We can look at it, but it will take months to get funding,'" Tucci says. "So we'd do any work-around we could."

Sometimes, the resident IT group found out about those rogue projects. "Bent noses were common," Tucci acknowledges. "But eventually they got over it because instead of saying, 'Ha-ha, we one-upped you,' we'd invite them in. We'd tell them what we were doing and how it was done, and they might be able to use it in other departments."

— Gary H. Anthes

going to work in the future, because other executives are going to develop a lot of expertise in these areas," he says. "When I look at the IT of the future, it really becomes a lot more of a competency center for program management, contract management, relationship management."

For example, Schueman says, the IT shop should apply its special skills in IT contract negotiations. He says he recently delayed a project, "while the user was champing at the bit," in order to better negotiate with a vendor. "By waiting, we were able to save several hundred thousand dollars," he says. So what should CIOs do when they discover rogue IT projects in their companies? Says Emcor's Puglisi, "Take a look at yourself and try to understand why it would happen. Perhaps they had a bad experience with your staff, or with you, or maybe they don't know about you." ▀

INSIDER TIPS

Don't get stung by end-user departments that negotiate contracts with application service providers:

➔ **QuickLink 40670**
www.computerworld.com

When Rogue Is Right

The IT shop at J.R. Simplot Co., a \$3 billion agribusiness concern in Boise, Idaho, often allows other departments to undertake IT projects. That can happen if the IT department doesn't have the resources needed at the time or when the system draws on expertise uniquely available in some other business unit, according to CIO Roger Parks.

Here are some examples:

■ The company's online wholesale food shop, SimplotFoods.com, was developed by the marketing department and a Web development company.

■ People with IT experience in Food Group Plant Operations are developing a manufacturing management system.

■ The human resources department oversaw the outsourcing of a learning management system.

■ IT personnel in AgriBusiness Plant Operations developed plant-specific environmental, health and safety systems.

■ AgriBusiness subject-matter experts and on-site IT people developed a system to extract and analyze maintenance and procurement performance metrics from the company's ERP system.

Parks says he has succeeded in helping even geographically scattered users by publishing IT standards for all users in areas such as databases, query tools, PCs, servers and e-mail.

— Gary H. Anthes

SHAPe THE PROCESS for managing an offshore IT operation into a pyramid, and at the top are personal visits. Directly below that are videoconferences, followed by telephone calls, e-mail, instant messaging and distributed software development tools. At the bottom are daily, weekly and monthly reports.

One person who has used many of those pyramid levels is Rao Vellanki, operations manager at Best Buy Co. Vellanki moved from India to the U.S. in 1977 at the age of 24 and lives in the Minneapolis area. But last year, he returned to India for a two-year assignment to manage Best Buy's offshore development in Chennai.

The Richfield, Minn.-based electronics retailer has several hundred developers in India, many with outsourcer Wipro Ltd., to handle the management and development of more than 500 applications.

Vellanki relies on a variety of methods to communicate with the home office, but one important tool is videoconferencing. "There is no question, in my view, that seeing the faces adds to the effectiveness of communications," he says. Vellanki adds that videoconferencing technology needs to improve, but it does the job. "The personal touch is there, the integrity is there — even though it's only an intangible, we find it unavoidable," he says.

Manage Your Contractors

There are tools and techniques for managing every aspect of offshore work. For instance, Fieldglass Inc. in Chicago has software for procuring and managing contract IT labor. And

The screenshot shows the ELANCE software interface. The top navigation bar includes 'SELECT MODULE', 'HELP', and user information 'Logged in as Buyer, Zeke Derby'. The sidebar on the left lists modules: Source (RFXs, Master Service Agreements), Procure and Manage (Service Engagements, Requisitions, Projects, Service Agreements, Contingent Labor, Contractor Requests, Work Orders, Contractors, Invoicing), Suppliers (Supplier Management), and Administration (Analytics, Reporting). The main content area is divided into sections: Message Center (listing messages like 'Receipt #941 submitted by Administrator is pending your approval'), Pending Approvals, Invoices (5), Timesheets (1), Work Orders (1), Receipts Schedules (4), Supplier Spend Analysis (a bar chart showing YTD Total of \$34.53M with a legend for Copywriter, Application Developer, Customer Service, Data Entry Operator, Database Admin, and Application Developer), Help and Preferences (Service Engagements Help, Contingent Labor Help, About Elance 3.5, User Preferences).

ELANCE software can manage service-level agreements and invoices, consolidate message traffic and analyze spending patterns. Both the client and contractor need to install the software — but contractors tend to go along as a contingency for getting paid, Elance officials say.

Elance Inc. in Sunnyvale, Calif., has software for procuring services and managing the contractual relationship. Elance's software automates the tasks of contract compliance and payment schedules: If the contractor hits the milestones, it gets paid; if it doesn't, there are financial penalties.

On the more nitty-gritty level of software development, there are collaborative software development tools. Users say these tools are good for quickly assembling relevant data while ensuring

that everyone involved has a shared view of the information. This often means keeping e-mails addressing particular issues in a central location and making sure they are cross-referenced.

Best Buy relies on Wipro's project management tools, such as Cocoon, which tracks projects and their progress and provides for a discussion forum, among other features. Outsourcing vendor Cognizant Technology Solutions Corp. in Teaneck, N.J., also makes its own collaboration envi-

ronment, called eCockPit. In addition, there are third-party tools for distributed software development.

Phillip Lindsay, chief architect at Data Trace Information Services LLC in Anaheim, Calif., says he'd prefer to bring all software developers into the same room to review projects. But with about half of his 18-member development team in India, that's not an option.

"It's currently difficult to do software development in one location, and it's even harder to do it in two locations in two time zones," he says. "Add in a radically different time zone, culture, country, connectivity — just phone calls sometimes are laborious."

Lindsay uses a distributed software development tool called SourceCast from CollabNet Inc. in Brisbane, Calif. SourceCast is designed to work in a WAN and manages development work in a source-code repository. If a file changes overnight, those changes are seen immediately. "Conflicts are found in real time, and that reduces the cost," he says.

Software tools can help, but managing offshore contractors often requires a personal touch. For example, Wipro has workers at Best Buy's U.S. headquarters. And Lindsay says Data Trace has an employee from India who is helping his team with cultural and language issues.

The same tools and techniques that work for managing offshore software developers can also work for offshore manufacturing, says Mark Goldberg, a vice president at Koret of California Inc., an Oakland-based clothing manufacturer and subsidiary of St. Louis-based Kellwood Co.

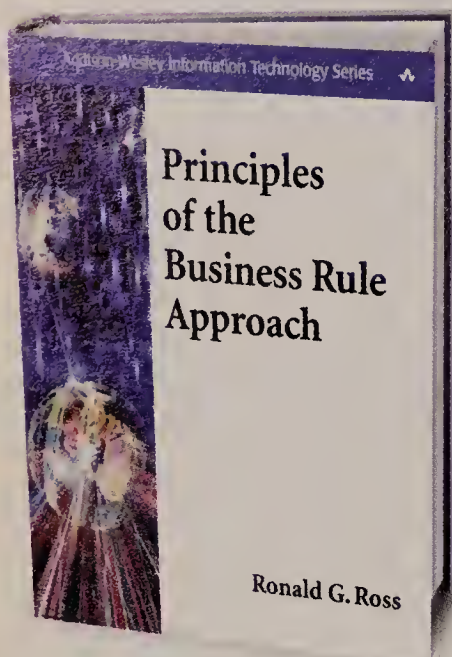
Koret does all its manufacturing offshore and doesn't want to maintain inventory. Goldberg uses Internet-based software developed by New Generation Computing Inc. in Hialeah, Fla., to keep track of the manufacturing operations. Everyone involved in the manufacturing process enters data into the system, so "there is no question about who owns that piece of information, who is responsible," he says.

Alan Brooks, who founded New Generation in 1982, says a big part of managing diverse work sites is understanding the thousands of details involved. Brooks has developed tools he uses to manage software development applying the same methods he uses to manage offshore manufacturing. His advice to IT managers developing software overseas: Approach it like manufacturing a physical product — consider every aspect of the life cycle.

"I think making software is manufacturing," he says. ▀

Global Toolbox

Managers try various tools, from videoconferencing to collaboration software, for managing offshore contractors.
By Patrick Thibodeau



Don't start an IT project until the company has written a clear set of rules about the way it does business.

By Ronald G. Ross

RECENTLY, colleagues and I were talking to the chief software developer at a large client organization about progress on a major re-engineering effort there. Our concern was whether the project team members could meet a deadline some nine months out for delivering a large-scale prototype. We'd just spent several intensive months developing a comprehensive business model, and they still had several months of system design left to complete.

This chief developer is very sharp — not one to commit to any answer lightly. For the longest while, he said nothing, lost in thought. Finally, eyeing the detailed business diagrams plastered on the walls all around, he said, "If we had already started coding, I would say we had no chance at all. But since we haven't started coding yet, I'd say the chances are pretty good."

I had to run that by several times in my mind before I caught his meaning. "If we had already started coding, I would say we had no chance at all."

I knew he thought that the application coding itself was going to be pretty tough. It would involve using a rules engine, a worldwide distribution network, graphical user interfaces and some significant middleware.

He was saying that if they had to resolve all the business issues while coding, they would never pull it off in time — or probably ever. However, since the project team was tackling the tough business issues upfront (including specifying the business rules),

he thought they had a pretty good chance of completing the code by the target date.

In large measure, the business rule approach is simply about asking the right questions of the right people. There is only one way to honestly meet a deadline — and that's to solve the business problem first.

Business-Driven IT

In the early days of building business systems, the business side could essentially sit back and just let them happen. The advantages of automating were so compelling that you could do virtually no wrong. Now, for all practical purposes, business and IT operate inseparably. When undertaking projects, the logical step then would be to put together

seamless business/IT project teams and have them follow a business-oriented approach to developing requirements. Yet many companies are nowhere close to doing that today.

All too often, the business side still produces fuzzy, ill-focused "requirements," and the IT side continues doing "requirements" only a notch or two above programming. How can this gap between business professionals and IT professionals in developing requirements be eliminated?

The answer is relatively straightforward. The business needs an organized approach that enables business professionals to drive the development of requirements. This approach must provide a road map that shows how to ask the right kinds of questions about the right things at the right times. What's needed is a business-driven approach.

BOOK EXCERPT

The Rule Book

How many rules does your company have? A thousand? Ten thousand? How easy is it to change any one of those rules?

Many companies today are starting to realize that they have problems with rule management. Rules need to be managed in a consistent or coherent manner.

Your company's book of rules shouldn't be paper-based but rather automated in a database or repository, where the rules can be managed and readily accessed. That way, the book of rules can play a very active role not only during the system development project, but also once the new business system becomes operational. Software tools are now available that enable direct business-side management of rules, opening unprecedented opportunities for the business.

— Ronald G. Ross

In traditional development approaches, much is usually lost in the translation of upfront requirements to the actual running system. But writing a set of clear business rules improves communications between the business side and IT, and provides a bridge between business analysis and system design. The business rule approach helps to close the requirements gap between the business side and the IT side.

So what's a business rule? From the business point of view, it's a directive

Business Rules Com

intended to influence or guide behavior. Business rules are literally the encoded knowledge of your business practices. From an IT point of view, a business rule is an atomic piece of reusable business logic.

In a way, everyone knows what business rules are — they're what guide your business in running its day-to-day operations. Without business rules, you'd always have to make decisions on the fly, choosing between alternatives on a case-by-case basis. Doing things that way would be very slow.

Rules are familiar to all of us in real life. We play games by rules, we live under a legal system based on a set of rules, and we set rules for our children. Yet the idea of rules in business systems is ironically foreign to most IT professionals. Say "rules" and many IT professionals think vaguely of expert systems or artificial intelligence. There's little recognition of how central rules actually are to the basic, day-to-day operations of the business.

Not coincidentally, many business-side workers and managers have become so well indoctrinated in procedural views for developing requirements that thinking in terms of rules might seem foreign or abstract. Virtually every methodology is guilty in this regard, whether for business process re-engineering, system development or software design.

This is unfortunate for two reasons:

1. Thinking about any organized activity in terms of rules is actually very natural. For example, imagine trying to explain a game like chess, checkers, baseball or football without explaining the rules.

2. Business-side workers and managers have the knowledge it takes to create good rules.

Sample Rules

Take a look at the sample rules that follow, and notice how every aspect of operational control in a business system can be addressed by rules:

■ **Restrictions:** A customer must not place more than three rush orders charged to its credit account.

Library Fact Model

This diagram shows a graphical fact model for a library. The rule's wording is based directly on the fact model, which is a diagram of basic business concepts — a knowledge structure. A fact model can and should provide a first-cut blueprint for how data will be eventually organized in a database. **RULE: A library card may be used to check out a book only if the book is owned by a library for which the card is authorized.**



■ **Heuristics:** A customer with preferred status should have its orders filled immediately.

■ **Computations:** A customer's annual order volume must be computed as total sales closed during the company's fiscal year.

■ **Inference:** A customer must be considered preferred if the customer places more than five orders over \$1,000.

■ **Timing:** A customer must be archived if the customer doesn't place any orders for 36 consecutive months.

■ **Triggers:** "Send advance notice" must be executed for an order when the order is shipped.

Rules build directly on terms and facts. Terms — like *customer*, *shipment* and *invoice* — should have a precise, unambiguous definition in the business. For example, *customer* might be defined as: "An organization or individual person that has placed at least one paid order during the previous two years."

Facts are given by simple, declarative sentences that connect the terms with a verb or verb phrase, such as, "Customer places order."

A "fact model" is a set of fact statements that describe the results of a business operation (see diagram). A fact model should serve as an initial blueprint for a data model, but its primary purpose is to capture knowledge about the business in a structured form, distilled from the business-side workers and managers who possess it.

Rules About Business Rules

- Rules should be written and made explicit.
- Rules should be expressed in plain language.
- Rules should exist independent of procedures and workflows.
- Rules should guide or influence behavior in desired ways.
- Rules should be motivated by identifiable and important business factors.
- Rules should be accessible to authorized parties.
- Rules should be specified directly by those people who have relevant knowledge.
- Rules should be managed.

Rules essentially add the sense of the words *must* or *must not* to the terms and facts, as in, "Orders on credit over \$1,000 must not be accepted without a credit check."

Rules should be expressed in clear, unambiguous, well-structured business English, starting with an explicit subject. Rules should have no fluff and no missing facts. Rules can be qualified, as in "A shipment must be insured if the shipment value is greater than \$500." And rules can include timing criteria, as in "A student must be enrolled in at least two courses by the close of registration."

Rule Independence

A business is very much like a human body. The knowledge (term and fact) structure is like the skeleton; the processes are the powerful muscles; and the rules are the nervous system that controls the other two. All three are essential and interrelated. But business rules should be separate from the other two. A basic principle of this approach is that rules are independent of processes and procedures. A fringe benefit of that "rule independence" is a huge simplification in the processes.

The result is a "thin process," a long-standing goal of many IT professionals. By taking the rules out of the processes, you can produce processes that are relatively simple and can be changed as the need arises.

In the National Football League, if a play isn't working for a team, it will be gone from its playbook within a couple of games. The plays are essentially throwaways. Similarly, businesses need to view their own procedures as throwaways — cheap enough to discard and replace readily when the procedures no longer work well.

Throwaway procedures are a must for the business to be adaptable and competitive. This deceptively simple idea — made possible by the business rules approach — can revolutionize the way work is done and systems are designed. ▀

Reprinted with permission from Principles of the Business Rule Approach, by Ronald G. Ross (Addison-Wesley, 2003). Ross is co-founder and principal of Business Rule Solutions LLC and executive editor of the Web site BRCommunity.com.

WHO'S CHANGING THE RULES?

Should you let business managers make changes in the business rules embedded in IT systems?

QuickLink 39830
www.computerworld.com

eFirst

BRIEFS

'Virtual Close' Piques Interest

Large companies that are looking to close their monthly financial books faster than the current paper-based 15 days are showing interest in the "virtual close," according to a report by Meta Group Inc. With a virtual close, all transactions and expenses are reported in real time instead of in batch mode.

Tracking inventory and expenses in detail and motivating employees – for example, salespeople who need to provide monthly sales reports – to enter correct numbers into the system on time are most important. The goal, Meta said, is to be able to do a virtual close on a dime. To accomplish that, companies must streamline their systems and adopt the following practices:

- Keep the code simple and focused on financial reporting.
- Re-evaluate the value gained from complex allocations and chargebacks.
- Reduce both the number of books and the number of ERP applications they are entered on so the finance department has fewer systems to coordinate.
- Use a common set of best practices throughout the company to improve coordination.
- Improve business performance management using Web-based reporting/result software.

Eaton Hires IT Vet as New CIO

Industrial manufacturer Eaton Corp. has named Robert Sell as its new CIO. Sell has approximately 30 years of IT and operations experience and most recently was CIO at Moore Wallace Inc., a distributor of print and digital information. He has also worked as CIO at Brunswick Corp. and Coors Brewing Co. Sell will lead the Cleveland-based company's worldwide IT operations and report to Richard Fearon, Eaton's chief financial and planning officer.

PAUL GLEN

Think Like an Archaeologist

IF YOU'D LIKE YOUR IT PROJECTS and department to run more efficiently and effectively, you probably need to develop a keen appreciation for the work of archaeologists. That's right, real archaeologists. I'm not talking about the Indiana Jones variety of adventurous grave robbers, but of those men and women who spend their summers patiently digging in the dirt with trowels, dental picks and paintbrushes looking for sticks, stones and bones.

For us, what's important about their work isn't the excavation part, but what they do with the artifacts after they've removed them from the site. Archaeologists are students of the history of human technology. The fundamental premise of the field is that by carefully examining the artifacts of a past culture, we can understand the people who made those objects. We can learn not only about how the objects were made, but also about the ideas, values, culture and history of those who made them. We can understand to some degree how they lived and what they thought.

What archaeologists have recognized is that technology doesn't exist independently from people. In their eyes, a piece of technology is a durable form of human expression. When they look at a potsherd, they can often determine how the pot was made, including where the clay came from, what tempering was added to the clay and how it was fired. If the clay originated far from where the object was found, it indicates that the makers either traveled or traded. The techniques used to make the pot show how advanced the maker's knowledge of



PAUL GLEN is author of *Leading Geeks: How to Manage and Lead the People Who Deliver Technology* (Jossey-Bass, 2003) and principal of C2 Consulting in Los Angeles. He can be reached at info@c2-consulting.com.

pottery technology was. The shape and decorations often convey the use of the object. The choices made by the ancient artisans offer a glimpse into their minds and values.

This is no different from the technology coming out of any modern IT group. The technology that you create bears the marks of your team just as a stone ax shows the marks of an ancient flintknapper. The technology that you create is a reflection of the individuals who make it, the values of the makers and of the dynamics of the group.

In short, technology is the collective expression of the team that creates it. It doesn't exist as an entity separate from the team. They are reflections of each other. The team often organizes itself according to the demands of the technology, and the technology is produced through the dynamics of the team. In his book *The Dynamics of Software Development* Jim McCarthy refers to this phenomenon as "Team = Software."

For example, imagine that you're developing some sort of software system, and you get to the system integration phase and find that two chunks of

code don't integrate well with each other. In this situation, you can be pretty sure that the two groups that developed those different chunks of code don't communicate well. In fact, they probably don't like each other much, either. The dynamics of the human interaction have been expressed in the form of code.

I'm sure you've all seen a system in which the user interface made perfect sense to the programmers but was completely unintelligible to the users. Usually the interfaces on these systems reflect the underlying structure of the code rather than the business processes of the users. You can be assured that the cultural assumptions of that group include the idea that understanding technology is more important than understanding business improvement. The values of the group are clearly expressed in the design of the interface.

Have you ever worked on a system that was beautiful to behold, but was impossible to deploy and/or support? You can be pretty sure that the group that develops such a system holds programmers in higher esteem than deployment specialists, operations personnel or help desk technicians. The concerns of these groups were discounted or ignored during the design and construction. The social hierarchy of the group is right there, like a fingerprint on an Aztec water jug.

If you pay close attention to the dynamics of your group, you'll probably be able to predict what your technology will look like long before the money is spent developing and deploying it — and maybe your work will live on rather than being dug up by some future archaeologist. ▀

WANT OUR OPINION?

For more columns and links to our archives, go to www.computerworld.com/opinions

Apply for complimentary registration* to Computerworld's IT Executive Summit

Visit www.itexecutivesummit.com/bi or complete and mail this card

* Complimentary registration is restricted to qualified IT executives only.

- ☐ **YES!** I'm interested in one of the following:
 - ☐ Tuesday, September 23rd, Rendezvous Room, Hilton New York, Rockefeller Center
 - ☐ Thursday, September 25th, Venetian Room, The Fairmont San Francisco, Nob Hill
- ☐ **NO,** I can't make it and I'm interested in more information on Business Intelligence.

Name:		Title:	
Company:			
Address:			
City:		State:	Zip:
Phone:		Email:	





NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO 709 FRAMINGHAM, MA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

500 OLD CONNECTICUT PATH
PO BOX 9171
FRAMINGHAM MA 01701-9886



Got Questions About Business Intelligence?

Computerworld's IT Executive Summit Has the Answers

If you're an IT executive* in an end-user organization, apply to attend one of Computerworld's upcoming complimentary one-day summits on Business Intelligence.

Neither a product nor a system, Business Intelligence (BI) is an architecture – a collection of interrelated operational and business performance measurement applications and databases.

The only way to succeed with BI applications is to understand their complexity, their cross-organizational nature, the needs of knowledge workers, your competition, your market, and customer trends.

This summit will give you a comprehensive, one-day overview – and will arm you with the latest thinking and tools to make the right investments in BI.

* Complimentary registration is restricted to qualified IT executives only.

New York City • September 23, 2003

Hilton New York • 1335 Avenue of the Americas

- 8:00am to 8:30am Registration and Networking Breakfast
- 8:30am to 9:00am **Turning Information into Insight: The Changing Role of Business Intelligence in the Enterprise**
Maryfran Johnson, Editor in Chief, Computerworld
- 9:00am to 9:45am **The User Experience: An In-Depth Case Study**
- 9:45am to 10:15am **Thriving in Times of Transition: One CIO's Perspective**
- 10:15am to 10:45am Refreshment and Networking Break
- 10:45am to 11:45am **High-Impact Strategies for Delivering Business Intelligence Results**
Panel Discussion moderated by Julia King, National Correspondent, Computerworld
- 11:45am to 12:15pm **Evolving the Enterprise: Leveraging Information for Competitive Gain**
Jim Davis, SVP, SAS Institute
- 12:15pm to 1:00pm Networking Luncheon
- 1:00pm to 1:30pm **Building Innovation into a Business Intelligence Infrastructure**
Shaku Atre, author of Business Intelligence Roadmap and President, Atre Group
- 1:30pm to 2:00pm **Turning a Legal Eye on IT Governance**
James Hackett, Jr., Partner, Choate, Hall & Stewart
- 2:00pm to 3:00pm **Regulated IT: Uncle Sam Wants Your Data**
Panel Discussion moderated by Tom Hoffman, Computerworld Reporter
- 3:00pm Program concludes

San Francisco • September 25, 2003

The Fairmont San Francisco • 950 Mason Street (Nob Hill)

- 8:00am to 8:30am Registration and Networking Breakfast
- 8:30am to 9:00am **Turning Information into Insight: The Changing Role of Business Intelligence in the Enterprise**
Maryfran Johnson, Editor in Chief, Computerworld
- 9:00am to 9:45am **The User Experience: An In-Depth Case Study**
- 9:45am to 10:15am **Thriving in Times of Transition: One CIO's Perspective**
Doug Busch, CIO, Intel
- 10:15am to 10:45am Refreshment and Networking Break
- 10:45am to 11:45am **High-Impact Strategies for Delivering Business Intelligence Results**
Panel Discussion moderated by Julia King, National Correspondent, Computerworld
- 11:45am to 12:15pm **Evolving the Enterprise: Leveraging Information for Competitive Gain**
Jim Davis, SVP, SAS Institute
- 12:15pm to 1:00pm Networking Luncheon
- 1:00pm to 1:30pm **Building Innovation into a Business Intelligence Infrastructure**
Shaku Atre, author of Business Intelligence Roadmap and President, Atre Group
- 1:30pm to 2:30pm **Regulated IT: Uncle Sam Wants Your Data**
Panel Discussion moderated by Tom Hoffman, Computerworld Reporter
- 2:30pm to 3:00pm Thornton May, IT Futurist and Computerworld Columnist
- 3:00pm Program concludes

Selected speakers include:



Maryfran Johnson
Editor in Chief
Computerworld



Shaku Atre
Author
Business Intelligence
Roadmap



Thornton May
IT Futurist

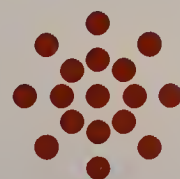


Doug Busch
CIO
Intel

Apply for registration today

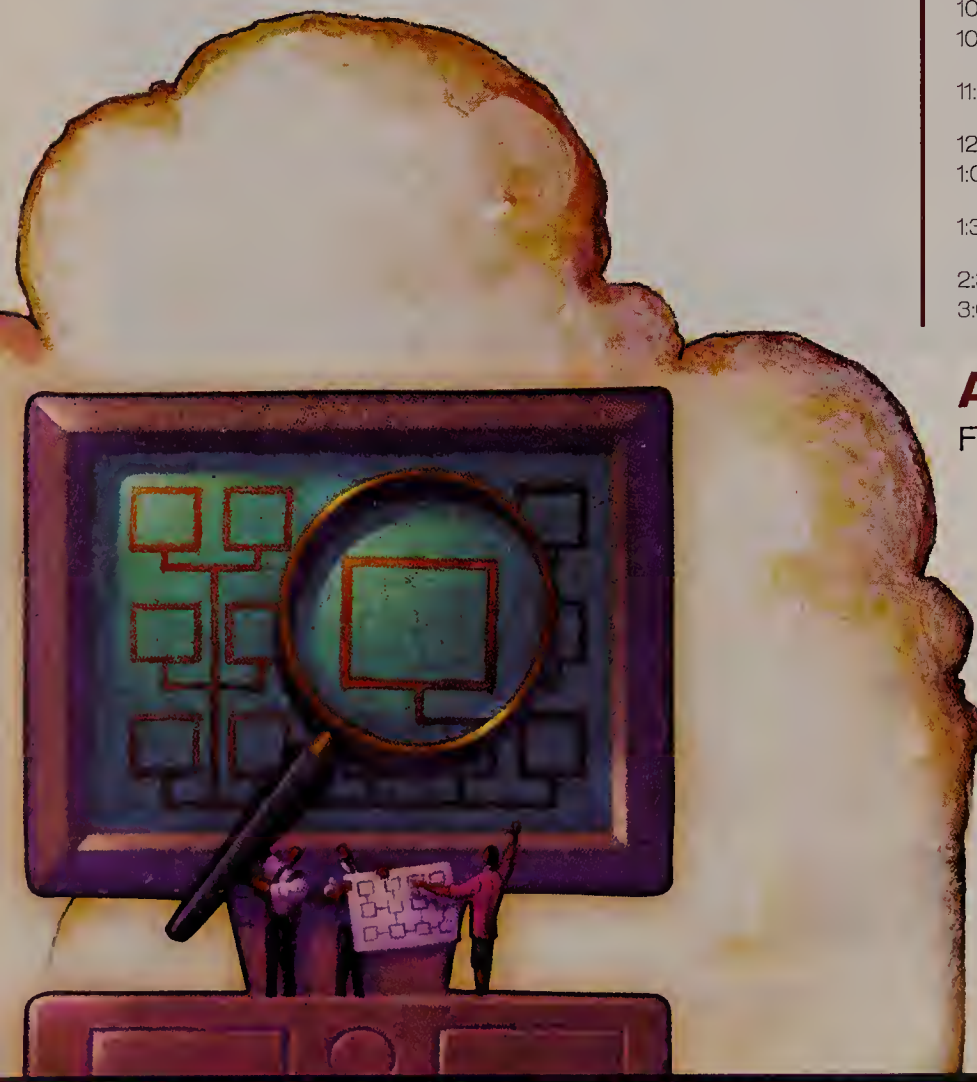
For more information or to apply, visit www.itexecutivesummit.com/bi

Exclusively sponsored by:



COMPUTERWORLD
IT Executive Summit
on Business Intelligence

www.itexecutivesummit.com/bi



Programmers, Programmers, Software Engineers & DBAs: Design, develop, test and implement specialized software apps. (a) Oracle Financials and Manufacturing 11i and related tools, Erwin, Cognos Suite, Business Objects and MF Cobe. (b) SQL DBA, Unix Admin, VB Sybase, Cobol, C, Cold Fusion and related technologies. (c) J2EE and related technologies, Rational ClearCase, CORBA, MQSeries and related tools. (d) BDF, JPROBE Test Factory, Requisite Pro, CORBA, Patrol DB, LDAP Server and Silk Pilot. (e) EAZYTRIEVE+, Xpedio Server, SQL Backtrack, PatrolDB, NetIO, Infopac, Netview and Gauntlet Firewall. (f) PeopleSoft HRMS (HR, Payroll and Benefits Administration) Application Engine, SQR, Cobol, DB2, CICS, nVision, Crystal Reports and related tools. (g) Java and related tools, CORBA, Sybase, Swing and Rational Tools (h) Oracle Database Admin. in Oracle 11i, Oracle Enterprise Manager, Solaris AIX, VB, C++, SOL*Plus and related tools. (i) Cold Fusion and related tools, ASP, XML, DHTML, Crystal Reports, Java, VB, DCOM, MS SQL and Oracle 8i. (j) Oracle Financials and PeopleSoft, Tuxedo, Developer/Designer 2000 and related tools. (k) Hyperion Essbase Apps. and related tools. (l) Oracle, Peoplesoft, ASP, Java and related tools, SQA Robot, Mercury Test Director and Silk. (m) Clarify and related technologies. (n) JDK, ASP, CORBA, Oracle, SOL Server, Linux, VB and HTML. (o) SAS and related packages, Java, Business objects and Oracle. US Workers only. Consulting positions requiring travel. Prevailing wage/benefits. Send resume to HR, SSG, 3300 Buckeye Road, Suite 555, Atlanta, GA 30341, identifying interested position(s). No Phone calls please.

Voicecom Telecommunications, LLC seeks a Sr. Director of Network Operations to direct and manage an integrated Network Control Center and Field Operations Team, which supports Voicecom's nationwide IP, Voice and Data Telecommunications. Responsibilities include advanced level network engineering and maintenance support, direct and manage a team of managers, engineers, technicians and field operations. Manage extensive voice, data and IP networks to include IVR, PBX, VoIP, Voice Messaging systems, Clear Channel, Channelized, Fractional, DS1, DS3, SONET, DWDM, ATM, SMDS, Frame Relay, SMTP, IITTP, TELNET, TRACEROUTE, PING, BGP, ISIS, Static, Multicast, "MPLS VPN", IS-IS metrics, DMS Switching, Voice Trunks, DID & 800 Services. Candidates should have a BA or BS in Computer Science or related field, five or more years of business management responsibility, extensive lease management negotiation, relevant technology experience and good references. Please submit your resume with salary history and requirements to: HR Director, 5900 Windward Parkway, Suite 500, Atlanta, Georgia 30005.

Sr. Systems Developer - life cycle syst. develop. features/projects in ASD, generate require./function. specs, design consolid./develop./unit test/maintain, interface w/ ASD Quality Assur. for integration testing & interact w/ ASD architect. for project/feature life cycle. Bachelor's or foreign degree equiv. in CS, MIS, CIS, Engineer., or related, & 5 yrs progressive exp. in position, in software or systems engineer., program. or develop. req'd. Will accept Master's in stated fields in lieu of bachelor's + exp. Competitive salary, 40 hrs/wk, QT as need. Send resume to: M. Powers, HR Mgr, REF#JY, CoreCARD.1 Meca Way, Norcross, GA 30093.

Full-time Programmer/Database Analyst: Lead programmer/database analyst responsible for full software development lifecycle. Manage, design, develop and implement database, database web site for standard reporting and information exchange. Identify business requirements, translate business requirements into functional design and processes for diverse development platforms, computing environments, software, hardware, technologies and tools. Research and evaluate new technologies and recommend cost effective solutions. Develop and prepare computer programs. Prepare program test data, tests, and debug programs. Work with SOL, Oracle, C++, JAVA, PL/SQL, Windows NT, Unix and OS2. Must have Bachelor's degree in Computer Science or related field. Employer will accept combination of education/experience that equates to Bachelor's degree (3 to 1 rule). Foreign or domestic education equivalent to Bachelor's degree accepted. Must have 2 years experience in job offered or position with same duties. Salary: \$72,500. Send resume to Natasha Lyttle, Ref. # NCL001, SITA INC, 3100 Cumberland Boulevard, Suite 200, Atlanta, Georgia 30339.

Mechanical Software Engineer: Develop Real-Time control modules on Windows NT/2000/XP platform. Design PC-based Computerized Numerical Control (CNC) and Programmable Logic Control (PLC), industrial robots and servo motion control functions and algorithms in C, Visual C++/MFC and Visual Basic. Develop Real-Time drivers for IEEE1394 FireWire and proprietary high-speed fiber optic communications. Perform mechatronics system integration and evaluation, machine dynamics and vibration analysis and servo tuning for CNC lathe and milling machines. Link CAD/CAM packages for Direct Numerical Control (DNC). Requirements include a Master's degree or equivalent in Mechanical Engineering. No work experience required. Applicants must have unrestricted authorization to work in the United States. Salary \$77,539/year. 40 hours/wk. Respond with two copies of resume to Case #200202479, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Computer Programmer who will plan, develop, test and document computer software using COM, COM+, MSMQ, MTS, IIS, IIS Security, ASP, Visual Basic, XML, RDBMS, WAP, Bluetooth, PVCS, SOAP, WML, ACH for PC, BizTalk Server, TestDirector, and Visual Studio.NET. Applicant must have a Bachelor's degree or foreign degree equivalent combination of education in Computer Science or Engineering. Applicant must have at least 5 years of work experience in software development in various platforms and technologies. Applicant must have working knowledge of Bluetooth, WML, ACH for PC, BizTalk Server, TestDirector, Visual Studio.NET, IIS Security and PVCS. Applicant must be a Microsoft Certified Professional Solution Developer. \$66,200/yr, 40 hours/wk, 9:00am-5:00pm. Send resume, listing Job Order Number WEB 347647 to Site Administrator, Greene County Team PA CareerLink, 4 West High Street, Waynesburg, PA, 15370-1324.

Web Service & Support Analyst I: Entry level position to design & develop multi-tier database-driven websites; troubleshoot & maintain medical staffing system using ASP, VB/COM, JavaScript, SOL/SOL Plus & HTML; use PhotoShop/ ImageReady & Flash to design graphics for web pages and advertising banners; web marketing w/ Search Engine Optimization; monitor & analyze Web Traffic. Req. BS in Healthcare Info Sys, CS or other related field, no exp. req. but must demo. ability to perform duties through course work in Healthcare Info Sys or related course. Resume w/ transcript to HR Director, Medical Doctor Associates, 145 Technology Pkwy NW, Norcross, GA 30092

Tool King, LLC, seeks a software developer with experience in software and web technologies. B.S. in Comp. Science + 3 yrs exp in VB, ASP, SQL-Server, IIS. Send resume to HR, 299 Bryant St., Denver, CO 80219.

Software Business Analyst: Consult with client companies to review, analyze, evaluate their business systems & write detailed description of user needs. Create technical specs & steps req'd to develop or modify information systems applications. Automate costing & purchase order system using MS ACCESS, Oracle, Crystal Reports, VB in Win NT environment. Req Bachelor's in Accountancy/Rel field with 2 yrs exp. Wages: \$60,000/yr, 40 hrs/wk, 8-5. Send 2 resumes: Case#200202838, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Technical Support Specialist: assign and coordinates work projects; establish work priorities and evaluate cost and time requirements; review and test programs to ensure compliance with specifications and standards; maintain company network system and website, process e-commerce. Req. BS or equivalent in CS, CE or related field w/ proficiency in JSP, HTML, TCP/IP, network HW/SW installation, configuration, and troubleshooting. 40hr/wk, 11-7. Contact Sunnitech, Inc. at 2780 Peterson Place, Norcross, GA 30071

Software Professionals

Chart Links is a rapidly growing medical software company located in New Haven, CT. We are seeking experienced full-time software developers and contractors with the following skills: HTML/XML, JAVA, JavaScript, SOL Server, Visual Basic, Data Modeling, RDBMS Designer and Crystal Reports. Forward your resume to Chart Links' HR Dept. via fax (203) 624-3501 or e-mail at: hr@chartlinks.com. For more information, please visit our website at: www.chartlinks.com.

The World Of Work Is Changing Every Week.



LUCKILY, WE ARE TOO!

itcareers.com is now powered

by CareerJournal.com!

Search for jobs and post
your resume here on
www.itcareers.com

Telecom tech co. in Framingham, MA seeks SW Engr. to design & develop call control service applications using C/C++, object oriented design & knowledge of telephony protocols. Port application on various operating systems (i.e. Windows 2000, Solaris & Linux). Diagnose, correct, test & deliver solutions for customer specific issues w/proprietary host-based telephony software. Provide engineering & technical service training on proprietary host-based telephony services & software. Must have: BS in Comp. Sci., Engineering, Math, Physics or equivalent + 6 months SW development exp. Must have exp. w/ C/C++ OS Programming & entire SW development cycle from design to testing. Knowledge of real-time embedded systems, telephony hardware devices, protocols & Telephony Infrastructure required. Salary: \$62,000/yr. Submit 2 resumes to Case #200202666, Labor Exchange Office, 19 Staniford Street, 1st fl., Boston, MA 02114.

Software Engineers & Programmers: Analyze, design, test and implement specialize software applications for e-commerce, Web, Client Server technologies, Legacy systems and distributed apps. in Weblogic, Corba, Apache, Mainframe, ASP, J2EE, Siebel, PB and related technologies utilizing appropriate RDBMS including Oracle and DB2. HR, Instcomp, Inc., 906 Lacey Ave., Suite # 206, Lisle, IL 60536. EOE.

Senior Programmer with MS in CS and min 2 yrs exp wanted in Houston. Must have working knowledge of ASP, .NET, J2EE, SQL, XML, TIBCO, Plumtree, Documentum wireless applications. Resume to: E-CEPTIONIST, Inc., 2000 Bagby, Ste. 5430, Houston, TX 77002.

Computer Systems Administrator. Analyze/maintain/modify applications on IBM mainframe. Req. BS Math/Comp. Science/Rel. Field & 2 yrs exp in job/2 yrs exp as Sr. Analyst/Programmer. Spec. Req. Expertise in COBOL, DB2, CICS, CSF, Cordaptix & Utility Billing Systems. Send Resume: Louie G. Abad, EV3A, Inc., 104 Pierpoint Cir., Folsom, CA 95630(Jobsite).

Paradigm Infotech is looking for programmer/system analysts, s/w engineers. Candidate must have BS with at least one-year IT experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML, ERP are plus. Traveling is required. Apply jobs@paradigminfotech.com. EOE

Staffing Tree, LLC has openings for System Analyst, IT consultants/recruiters. BS or equivalent required. Exp. in Oracle, Java, C/C++, SQL & IT placement/marketing preferred. Travel required for some positions. We sponsor green card. Please contact debdas@staffing-tree.com. EOE.

MA based IT company has openings for Software Engineers & DBA's: (Multiple openings): Research, Analyze, Design, develop, test, diagnose, and implement various business applications.

Real time OS Vx Works, Networking Protocols, PeopleSoft HR/Financials, IPSEC, IKE, BAAN ERP, BAAN tools, SAP r/3 and ABAP/4, Oracle 8.x/9.x/11.x, Sun Solaris 2.8, Veritas Clustering, Oracle Utilities, Unix Shell Scripting, PL/SQL, Erwin Data Modeling/Designing, Web Technologies like J2EE, JDBC/ODBC, Web sphere, EJB, COM/DCOM, C/C++, MS SQL Server, UNIX, J2EE Architect/Team-Lead experience in implementing financial applications on HP-Tandem Non-stop systems. Product Administration System SABLIME. Business Objects 5.1.5, Data Warehousing, Informatica - Power Center 5.1, SAS 8, Teradata Utilities, Erwin, Power Mart5.1 / PowerCenter 5, Data Junction, Cognos Impromptu 7.0, JD Edwards, WinRunner 6.0, Test Director 6.0, Silk, Load Runner, Rational Suite, SQA Suite.

DBAs must have experience in installation, migration, moving, setup, monitoring and trouble shooting of various database applications. May require travel to client sites. Software Engineer \$78,000 & up; DBA: \$60,000 and up. Mail resume to CRG, INC., 222 Turnpike Road, Suite 9B, Westboro, MA 01581

LINUX & AIX support. Assist univ. faculty/staff to use UNIX to support research, instruction, outreach. Work under Ass't Dir. & Syst. Software Spec.. Required knowledge & experience: Support Suse, RedHat Linux & AIX. Research security on AIX & Linux. Install/test OS & MySQL, DB2, GAMESS, Samba, Apache, Resin, Schrodinger, Matlab. WBM, NMON, MRTG to monitor system performance. Capacity planning, research hw configs. Build Beowulf cluster & pgm LAN/MPI PVM. Backup Linux with Reiserfs & EXT3 File systems. Linux or AIX System consulting. Support ARC GIS, DB2, WebSphere, Jakarta, Tomcat. Implement Geowall on Windows & Linux. 3-D data convert. Backup, restore, archive large-scale storage data. Storage expansion projection. Base Salary \$35,015 per 12 months plus fringe benefits. Send two copies of letter of application and resume to: South Dakota One-Stop Career Center, Attn: Laura Hoyt, 1310 Main Ave S, Suite 103, Brookings, SD 57006. Telephone: (605) 688-4350. Fax: (605) 688-6761. Must refer to Job Order Number SD1235290.

PROGRAMMER ANALYSTS for Arlington Heights, IL office. Design & Develop software applications using C++, Proc*, Oracle, Sybase, XML,UML, Coolgen, Interwoven, ClearCase, ClearQuest, PVCS, AIX, UNIX/Win NT. Bachelors req'd in Computers, Engineering, Math or related field of study +2 yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Contact HR Manager, Terasoft International, Inc., 2015 S.Arlington Heights Road, #114, Arlington Heights, IL60005.

DATA. WIRELESS. NETWORK.
YES, YOU'RE IN THE
RIGHT NEIGHBORHOOD.
WE LIVE WHERE YOU LIVE.™



What can a company like State Farm® possibly offer in the way of I.T.? Just one of the nation's largest computer networks. The drive of a Fortune 25 company. And a wealth of I.T. opportunities. How do you like the neighborhood so far?

LIKE A GOOD NEIGHBOR



STATE FARM IS THERE.®

For more information, visit statefarm.com® or email jobopps.corpsouth@statefarm.com.

State Farm • Home Offices: Bloomington, Illinois • An Equal Opportunity Employer

ExtraQuest Corporation seeks 3- Database Administrator to work in Greenwood Village, CO to develop and administer Oracle databases that run on UNIX and Linux platforms. Install and maintain database documentation and patch applications. Engage in capacity planning, systems analysis and design, application program development and proactive performance analysis, monitoring and tuning. Perform hot backups, hot standby databases and data guard configuration utilizing RMAN. Design, configure and administer Oracle Parallel and Real Application Cluster Database Servers. Engage in data conversion/migration, development of budget and project proposals and project management. Requires bachelor's degree in computer science or related field, as well as 4 years experience performing the core duties and using the skills described above. Respond by resume to ExtraQuest Corp., Human Resources, 5575 DTC Pkwy, #240, Greenwood Village, CO 80111, and refer to job #4106.

Mechanical Software Engineer: Develop Human-Machine Interface (HMI) for Real-time soft motion control modules on Windows NT/2000/XP platform. Design PC-based Computerized Numerical Control (CNC) and Programmable Logic Control (PLC), industrial robots and servo motion control functions and algorithms in C, Visual C++/MFC and Visual Basic. Perform control system integration and evaluation, machine dynamics and vibration analysis and servo tuning for CNC lathe and milling machines. Manage chassis and board structure design and improvement with CAD systems. Link CAD/CAM packages for Direct Numerical Control (DNC). Requirements include a Master's degree or equivalent in Mechanical Engineering. No work experience required. Applicants must have unrestricted authorization to work in the United States. Salary \$77,539/year. 40 hours/wk. Respond with two copies of resume to Case #200202478, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Prog. Analysts to analyze, design, develop apps using C++, VB.Net, ASP.Net, Java, JSP, Java Script, COM, Oracle, SQL Server, IIS, HTML, etc. under Windows, UNIX os; perform system & functional analysis; document development process; test, debug and upgrade existing software. Require candidates with BS or foreign equiv. in CS/Engg.(any branch) & 2yrs exp. in S/W field. F/T. Travel involved. Competitive salary. Send Resumes to: HR, Softrm Corporation, 3443 Pine Ridge Road, Naples, FL 34109

Hetrosys, LLC, based in Detroit, Michigan seeks Senior UNIX System Administrators and Senior Database Administrators for Detroit and nation-wide opportunities. All positions require B.S. in Computer Science. UNIX position requires two years high availability experience and MC/Service Guard certification. Database positions require two years experience in decision support application development or data warehousing in addition to standard suite of ORACLE administration tools. Apply via U.S. Mail with resume to Hetrosys, LLC, 3757 S. Baldwin Road #223, Lake Orion, MI 48359

QA Specialist: Produce test plan, test reqmts documents; create & run test scripts; compile test scripts into test procedures; code/dvlp VB scripts for regression testing; track & verify status of defects; dvlp & run SQL queries, w/ Client/Server Testing & Rational products, w/proprietary &/or COTS apps & mainframe apps. Req. Bach in CS, MIS or other related field + 2 yr exp. in job offd. Resume to Ms. Parchment, Business Computer Applications, 2180 Satellite Blvd., Ste 325 Duluth, GA 30097

Computers-Seeking qualified candidates for senior and mid-level IT professional positions including: Programmer Analysts, Project Managers, Software Engineers, IT/Software Consultants, Systems Analysts. Qualified candidates must possess MS/BS or equiv. and/or rel. work exp. Some positions require 1 yr. SAP exp. Exp. in multi-module implementation/multi-OS environment is preferred. Strong RDBMS background a plus. Fwd resume & references to: Halcyon Solutions, Inc., Attn: HR, 950 Taylor Station Rd., #D, Columbus, OH 43230.

CCIE Technical Support Manger-Post Sales - Manage post-sales technical support activities of technical support staff engaged in the analysis, design and implementation of solutions to engineering and integration problems of complex internetworked systems based in Cisco Systems technologies. Bachelor's degree or foreign degree equivalent in Computer Engineering or related field required and five years of experience in network design engineering and/or network support engineering. Please forward resume to Attn: Mike Gallimore, BellSouth Communication Systems, 2359 Perimeter Point Parkway, Charlotte, North Carolina 28208. Please do not email or fax resumes. EOE

DBAs to install, configure/administer Oracle database, SQL*Net, Net8; design & develop apps using Oracle, Dev 2000, SQL, etc; maintain & monitor backup, recovery procedures and maintain database security; design, code Java2Beans for Oracle database access; perform data entity design in Erwin, web interface design & appl logic definition. Prog. Analysts to analyze, develop apps using OOAD, Java, J2EE, ASP, EJB, XML, Jscript, Active X, JFC Swing, HTML, etc. under Windows, UNIX os; perform req. analysis; provide on site maintenance such as debug, modify, fine tune & code optimization. Require: BS or foreign equiv. in CS/Engg. (any branch) & 2yrs exp in IT. Comp. Salary. Travel involved. F/T. Resume to: Infilink Corporation, 4 Concourse Parkway, Ste 270, Atlanta, GA 30328

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: **Senior Business Application Analyst**. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent* in computer science, math, statistics, business or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with software development life cycle process and SQL also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Database Administrator (4 openings): Analyze, design s/ware & h/ware reqmts. Install, administer Oracle d/bases in HA cluster. Support OPS, Administer OAS. Database recovery, RMAN backup, Datastage, ERWIN, Reportwriter, Forms, Replication Manager, Pro*C, Shell Scripting. Use Solaris, HP-UX, AIX, DEC-Alpha, NT. Req. BS in CS, Math or other Engg or sci field + 1 yr exp. in job offd. 40hr/wk. Resume to: HR Mgr, Omnisoft, Inc., 1265 Compass Pointe Crossing, Alpharetta, GA 30005.

INTECH Software Solutions has several openings for Software Engineers. Will be responsible for research, design & development of software sys and apps. Must have a strong background in five or more of the following: Java, C++, Tuxedo, Smalltalk, VB, Oracle, Sybase, SQL Server, UML, XML, XSL, Rational Rose, MQ Series, Visibroker, CRM, OOD/OOP, EAI, iPlanet, WebLogic, Solaris, and Windows. Must have MS or eqvint. in Comp. Sci or Engineering and 3 yrs rele exp. Job in Atlanta, GA and other locations. Send resume to HR, Intech Software Solutions, 12600 Deerfield Parkway, Suite 100, Alpharetta, GA 30004. Email: hr@intechsw.com

Software Engineers Needed. Seeking qualified candidates possessing MS/BS or equiv. &/or relevant work experience. Part of the rel. req. exp. must include 1 year working w/ Data Transformation Services. Duties include design, develop, test and support software applications and systems. Mail res., sal. req. & ref. to: Smartopia, Inc., 1990 Middlesex St., #5, Lowell, MA 01851. ATTN: HR.

Netegrity, Inc., a leader in Software, Services and High Technology seeks a Professional Services Consultant. Position requires degree and industry experience. Also requires 70-80% domestic and international travel. If interested send resume to Human Resources, Netegrity, Inc., 201 Jones Road, 5th Floor, Waltham, MA 02451, or via fax. 781-207-5835, or online at www.netegrity.com. EOE.

Prog. Analysts to analyze, design, develop network security s/w using VC++, C++, SQL Server, MS Access, IBM Visual Age, Apache Web Server, etc. under Windows/UNIX os; design server side Java Components, GUI using JScript, JSP, Servlets, HTML, etc; design and optimize database using JDBC, SQL, ODBC, etc; develop encryption schemes; deploy, evaluate, test apps. Require BS or foreign equiv. in CS/Computer Engineering with 2 yrs exp in IT field. High salary. travel involved. F/T. Resumes: HR, Lancop, Inc., 3155 Royal Drive, Bldg. 100, Alpharetta, GA 30004.

Software Enggs. to lead teams to design, develop/maintain web apps using Java, J2EE, Servlets, ASP, EJB, HTML, JavaScript, JSP, VB, SQL Server, etc on Windows & UNIX OS; provide training & user support for the systems and related appln internally & to clients; debug and modify existing software. Require: MS or foreign equiv in Comp. Sci / Comp. Engg. & 1 yr exp. in IT. Full time. High Salary. Travel involved. Respond by mail to HR, ABZ Consulting, Inc., 2600 Century Prkwy, Ste 100, Atlanta, GA 30345.



THE WORLD'S BEST
IT TOOL IS IN
YOUR HANDS.

THE WORLD'S BEST
IT TALENT IS AT
OUR SITE.

WHAT ELSE WOULD YOU EXPECT
FROM THE ONE AND ONLY CAREER

RESOURCE FOR READERS OF

COMPUTERWORLD,

INFOWORLD AND

NETWORKWORLD?

COME ON,

RECRUIT OUR READERS

AND YOU'LL RECRUIT LESS OFTEN

CHECK US OUT AT:

WWW.ITCAREERS.COM

Looking For
A
New Career?

The new
itcareers.com

and

CareersJournal.com

combined

jobs database

can help you

find one.

Check us out!

www.itcareers.com

Application Software Engineers needed. Seeking qual. candidates possessing MS/BS or equiv. &/or relevant work experience. Siebel certification and experience preferred. Duties include Research, design and develop software applications and analyze software requirements. Mail res., sal. req. & ref. to: e-Prosoftgroup, Inc., 5617 Byrneland St., Madison, WI 53711, ATTN: HR.

We do
a better job
at helping
you
get one.



SEARCH FOR
JOBS
AND POST
YOUR RESUME
ON
ITCAREERS.COM
CHECK US OUT!

SYSTEM ANALYST analyze, design, develop, test and implement business apps, automated processing activities using Oracle & Developer 2000. Develop Forms & Reports, design & code on-line screens in Oracle database, document system model in Designer 2000. Write PL/SQL batch programs for reading text files. Forms, Reports, PL/SQL, Java Servlets, DHTML, MS Access. Master's in Mgmt Information Systems /related field w/ 2 yrs of exp. as I.T. professional & at least 1 yr exp. in all above technologies, skills & tools required. Will accept Bachelor's w/ 5 yrs exp. in lieu of Master's w/ 2 yrs exp. Send resume to: Palayekar Companies, Inc 1959 East Third St, Williamsport, PA 17701

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Flash, TIBCO, XML, STRUTS, EJB and WebLogic. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Flash, TIBCO, XML, STRUTS, EJB and WebLogic. Salary: \$66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Site Administrator, Greene County Team PA CareerLink, 4 West High Street, Waynesburg, PA 15370, Job No. WEB352072.

NetXert, Inc., has openings for Programmers, Software Consultants, Programmer Analysts, DBA's, Systems Analysts, Engineering Programmer with three or more of the following skills: Java, J2EE, .net/ASP, Visual Basic, C, C++, Visual C++, Coldfusion, Cobol, SQL Server, DB2, CICS, Oracle, Informix, Sybase, Access, Actuate, PeopleSoft, SAP, PowerBuilder, WebSphere, WebLogic, WebMethods, Apache, Unix, WinNT, Linux; Bachelor's or Master's degree (or foreign equiv) plus 1 or 2 yrs exp req'd depending upon position. For some positions, we also accept degree equiv. in educ. & experience. Travel and/or relocation required. Send resume & salary reqmt to: H.R., NetXert, Inc., 315 E. Eisenhower Pkwy, Suite 315, Ann Arbor, MI 48108

Director, Managed Solutions Practice-Meet w/ management of prospective client to analyze client's needs. Propose project & pricing, utilizing on-shore & offshore teams. Plan & manage project deadlines & budget. Act as liaison between client, on-site team & offshore team. Responsible for successful implementation & customer satisfaction. Will accept Bachelor's Degree or foreign equivalent in Computer Science, Engineering, Business or related field. Must have 2 yrs. consulting, project management or related exp. The 2 yrs exp must include 1 yr of project coordination exp for project requiring on-site & offshore teams. Must have SAP exp \$100K/yr, 40hrs/wk EEO/AAP/M/F/V/H Submit resumes to: Fayette Cty, CareerLink, ATTN: CareerLink Program Supervisor, 32 Iowa St., Uniontown, PA 15401-3513, Job Order No: WEB 351022

DynPro, Inc., a leading IT Consulting firm, is seeking qualified computer professionals with:

- Websphere, Net.Commerce, Net.Data
- JAVA, JavaScript, RMI, Swing
- CGI scripting-Perl, Shell, Korn
- C++, OOS, OOP, Visual Basic, visual C++
- SQL Server, DB2, Oracle, QMF
- Win NT and UNIX administration, AIX
- ABAP/4programming
- SAP-SD, SM, MM, PP, PI, WM, QM, PM, FI-CO, HR, BIW, CRM, ASP, HTML, XML
- Lotus Notes, Crossworld
- JD Edwards

All positions require MS/BS degree with 1 or 2 years of experience in the field and willingness to travel to client sites throughout the USA. Please e-mail resumes, prior to 10/1/03, to: mplueddemann@dynpro.com EOE

Senior Software Engineer
InfoWeb Systems, Inc., a leading provider of comprehensive computer software services and solutions, requires a Senior Software Engineer. Analyze requirements and design and develop webpage screenshots and applications using Sabre CRS, Amadeus JRES, BEA Portal and ISAPI. Document designs, prototypes and applications developed.

Job Requirements: Masters Degree in Computer Science or equivalent and 2 years experience in all phases of Software Development Life Cycle using Sabre CRS, Amadeus JRES, BEA Portal and ISAPI. Document designs, prototypes and applications developed.

Mail / Fax your resume to:
InfoWeb Systems, Inc.
3435, Asbury Road, Suite 175
Dubuque, IA 52002
Fax: 563.556.7990

Software Engineer to direct, research, design, develop, test and document software systems. The candidate should be well versed in all phases of SDLC and SEI methodologies. Should be technically sound with hands on experience in building Client-Server, distributed and web applications on UNIX and Windows platforms using C++, Java, CORBA, RDBMS, BroadVision, TIBCO, Cognos, shell scripting, Clearcase, OOAD, UML and RUP. Masters Degree in Engineering, and three years experience. Send resume to following address: Innovative Consulting Solutions, LLC, 1000 E. Woodfield Rd., Suite 102, Schaumburg, IL 60173.

We seek exp'd IT professionals & Network Engineers / Administrators & Public Health Data Analyst / Consultant / SAS Programmer. IT Professionals must have B.S. C/S or Eng'g or electrical / Electronics Eng'g. & exp. using the following skills: (a) OEM, SQL Navigator, ETL Tools, SQL Anywhere, Business Objects, HP-UX, Sun Solaris; (b) Ultrix, Delphi, LISP, ProLogue, MVS, UDB, IEEE v 6.0, Tivoli; (c) SCO UnixWare / Open Server, SANs, HP 900 series, SunFire 6800, K-Shell Scripting, iPlanet Application / Web Servers; (d) Optimize SQL, Hypersion Essbase 5.0, T-SQL, BCP Scripting, Risk Scripting, HP-9000-800, ETL Tools (e) Network Engineers / Administrators must have 2 yrs. exp. & B.S. or Assoc. Degree in C/S or C/A. (f) Public Health Data Analyst / Consultant/ SAS Programmer must have B.S. / MS in C/S or Public Health and exp. in statistical analysis of public health data / healthcare data using SAS 8.2, SUDAAN, SPSS, EPI-Info 2000. Please send resumes only to HR, American Cybersystems, Inc., 100 Crescent Center Pkwy, Ste 290, Tucker, GA 30084

Enhance your career possibilities with Fidelity Information Services. We currently have openings for the following positions in San Diego, CA. Programming Supervisor: Resp. include managing design, development, testing, documentation and analysis of ACBS software systems in the AS/400 environment. Qualified individuals must have appropriate degree or equivalent and relevant experience including 2 yrs. of exp with ACBS software. Consultant II: Implement ACBS suite of products/applications by leading support for installation, configuration/design, testing, conversion, and debugging. Qualified individuals must have appropriate degree or equivalent and relevant experience including 2 yrs. of exp. with commercial lending products. Please fax or send resume with references to Jennifer Michel at Fidelity Information Services, 12250 El Camino Real, Ste 140, San Diego, CA 92130; Fax: 858-703-2465.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in EJB, XML, JSP, STRUTS, Tomcat, UML & JDBC. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of EJB, XML, JSP, STRUTS, Tomcat, UML & JDBC. Salary: \$66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Site Manager, Armstrong County CareerLink, 1270 North Water St., PO Box 759, Kittanning, PA 16201, Job No. WEB352066.

Datagence Inc. has openings for Senior Software Systems Engineers for locs in NJ & elsewhere. Research, analyze, dsgn, dvlp, test, & implmt s/ware applics using Java, Perl, ModPerl, Oracle, SQL Server, PostgreSQL, HP/UX, Sybase, Linux, Visual C++ & VB. Reqs: Masters or equiv in Sci., Engg., Comp. Sci. or Math., w/2 yrs exp. Bach w/at least 5 yrs. of progressive exp. will be accepted in lieu of masters. Must have legal authority to work in US. Excellent pay & benefits. Mail resume w/proof of work status to: restvez@datagence.com

Info-Matrix Corporation has immediate, opportunities for both entry-level and experienced Programmers, Programmer Analysts, Systems Analysts, Software Engineers, DBA's and Software Consultants with three or more of the following skills: SQL, GUI, COBOL, Unisys 2200/Clearpath COBOL, DMS, RDMS, TIP, ECL, WebTS, OLTP, as well as MS.Net Visual Basic, OOD, C++, Visual C++, Oracle, Sybase, MFC, PowerBuilder, Oracle 7.1 or later, Crystal Reports, Rational Rose, JavaScript, HTML, DHTML, IIS, ASP, Java, LAN & WAN networking, SNMP, Frame Relay, Socket Interface, Network Node Manager, TCP/IP, Open View, Shell scripting, Oracle SQL, Configuration Management Software. Bachelor's or Master's degree req'd., depending on position. 1yr exp req'd. depending on position. We also accept the foreign edu. equiv. of the degree, or the degree equiv. in edu. and exp. Frequent travel and relocation. Send confidential resume and salary requirements to: 2101 North Front St., Bldg. 4, Ste 100, Harrisburg, PA 17110 Visit our website at www.info-matrix.com.

SENIOR WEB DEVELOPER to design, develop, test, implement and support client/server and web-based application software using VB, ASP, VBScript, JavaScript, HTML, DHTML, XML, ADO, Crystal Reports, ActiveX Controls, T-SQL, PL/SQL, DTS Packages, Oracle, SQL Server, IIS, MTS and MS Access with object oriented methodologies of COM/DCOM on Windows NT/2000 platforms. Require: M.S. degree in Computer Science/Engineering, or a closely related field with 2 yrs of exp in the job offered or as a Software Engineer; A B.S. degree with 5 yrs of progressively responsible exp in the field will be considered equivalent to a M.S. degree and 2 yrs of exp. Competitive salary offered. Send resume to communicationse@sensormatic.com or to Sensormatic Electronics Corp., 6600 Congress Ave., Boca Raton, FL 33487; Attn: HR Ref. - Job AL..

Seeking qualified applicants for the following positions in Colorado Springs, CO: **Senior Business Application Analyst.** Plan, direct and coordinate large-scale IT development projects. Requirements: Bachelor's degree* in computer science, mathematics, statistics, accounting or business plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with analytical reporting using either Focus, SAS, SQL or business intelligence tools; and project or program management also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Recruitment, FedEx Corporate Services, 350 Spectrum Loop, Colorado Springs, CO 80921. EOE M/F/D/V.

Dynamic Systems, Inc.
Programmer/Systems Analyst/Business Analyst For Lansdale, PA or North Brunswick, NJ
Internet: Java, JSP, EJB, WebSphere, WebLogic, Perl/CGI, VB, ASP, C#, ASP.NET, VB.NET
Admin: AIX, HP-UX, Solaris, Unix, Oracle, Sybase, SQL Server, DB2, Informix
Skills: RDBMS, Unix, VC++, C++, AS/400, RPG, IBM MF Cobol, DB2, Clinical, LIMS, Oracle Clinical
1086 525 Milltown Rd, Suite#107, North Brunswick, NJ 08902 650 N Cannon Ave, Lansdale, PA 19446, Phone: 732-246-2297 Fax: 732-246-3362
job@dynamicssystems-inc.com
WWW.Dynamicssystems-inc.com

IT/IS Manager. Provide Information Technology Strategies, Capacity planning and prioritizing of IT-related projects, Budgeting and purchase of hard- and software plus external consulting services, Integration of computer systems with the headquarters in Sweden. Development and ongoing hosting of Corporate Intranet Website. Deployment of corporate wide VPN-based server-system. Work with Risk management of virus-attacks, hacker-attacks and loss of portable computers. Work with backup procedures for emergency data recoveries. Monitor upcoming technology that can be put into business use, Internal education and support within IT/IS. Creating Electronic documentation for customers, Web based customer support and e-commerce. Establish ability of customer to post e-mail questions to highly qualified dental specialists. Work with VPN, NT Server, Exchange Server, SQL Server, IIS Server, HTML, TCP/IP, DHCP, wired and wireless LAN. Demonstrated ability providing Information Technology Strategies, Capacity planning and prioritizing of IT-related projects, Budgeting and purchase of hard- and software plus external consulting services. Demonstrated ability working with NT Server, Exchange Server, SQL Server, IIS-Server, TCP/IP, DHCP, LAN. \$99,413/yr. 40 hr/wk. 9:00 a.m. - 5:00 p.m. Must have 4 years exp. Send 2 resumes: Case #200202567, Labor Exchange Office, 19 Staniford Street, 1st fl., Boston, MA 02114.

WEB DEVELOPER (Delray, Florida & unanticipated employer's branches and affiliates nationally): Develop robust, efficient web and packaged systems. Analyze existing applications and business process flows, and recommend solutions for improvement. List benefits/pitfalls for software projects and provide time estimates for new projects. Design new systems, write efficient code, provide test environment, implement and support the finished products. Must be able to utilize and have experience in (1) developmental tools in MS Visual Studio 6.0 & Visual Studio.Net (C# & VB.Net), Visio & Crystal Reports; (2) database technologies in MS SQL Server 7.0/MS SQL Server 2000; (3) XML, UML & object-oriented technology; & (4) platforms Win 2000 (Professional/Server/Advanced Server). Must be able to utilize and have knowledge of Web Services (.Net). Must possess a Master's degree or equivalent in Computer Sc. or Computer Engrg.; and 6-mth experience in job offered or 6-mth experience as Software Engr. or Software Developer. \$70,000/yr; 8am-5pm; 40 hrs/wk; M-F. Send 2 resumes to HR101, Travel Services International, Inc. dba MyTravel USA, 220 Congress Park Dr., Delray Beach, FL 33445.

Programmer Analyst, Austin, TX - Develop, program and test custom interfaces and data conversion programs for information technology company. Client Support req'd. BS in Computer Science or related field. Salary commensurate with exp. 40 hrs/wk, 8:30 AM - 5:30 PM, M - F. Mail resume to: Info Tech, Inc., 5700 SW 34th Street, Suite 1235, Gainesville, FL 32608. EEO M/F/V/D



Where The
Best
Get Better!
www.itcareers.com

How to Contact COMPUTERWORLD

We invite readers to call or write with their comments and ideas. It is best to submit ideas to one of the department editors and the appropriate beat reporter.

Maryfran Johnson, editor in chief
(508) 820-8179

DEPARTMENT EDITORS

Don Tennant, News editor.....(508) 620-7714
Craig Stedman, assistant News editor.....(508) 820-8120
Mitch Betts, Features editor.....(301) 262-8243
Tommy Peterson, Technology editor.....(508) 620-7729
Jean Consilvio, assistant Management editor.....(508) 820-8562

REPORTERS

Bob Brewin, mobile computing/wireless; Intel PCs and servers; health care.....(505) 425-3551
Matt Hamblen, networking; network systems management; e-commerce.....(508) 820-8567
Thomas Hoffman, information economics; IT investment and management issues; careers/labor.....(845) 988-9630
Lucas Mearian, financial services; storage; IT management.....(508) 820-8215
Linda Rosencrance, general assignment; transportation/carriers.....(508) 628-4734
Carol Sliwa, Microsoft; Web services technologies; application development; retail industry.....(508) 628-4731
Marc L. Songini, ERP; supply chain; CRM; databases; data warehousing; EAI; CA.....(508) 820-8182
Patrick Thibodeau, enterprise systems; outsourcing and immigration issues; corporate antitrust issues.....(202) 333-2448

Dan Verton, federal/state government; legislation; critical-infrastructure security; travel.....(703) 321-2277
Jaikumar Vijayan, corporate security/privacy issues; manufacturing.....(630) 978-8390
Todd R. Weiss, general assignment; Linux; messaging/collaboration.....(717) 560-5255

OPINIONS

Mark Hall, Opinions editor.....(503) 391-1158
Frank Hayes, senior news columnist.....(503) 252-0100

FEATURES

Ellen Fanning, special projects editor.....(508) 820-8204
Robert L. Mitchell, senior editor.....(508) 820-8177
Mark Hall, editor at large.....(503) 391-1158
Gary H. Anthes, national correspondent.....(703) 536-9233
Julia King, national correspondent.....(610) 532-7599

COMPUTERWORLD.COM

Tom Monahan, online director.....(508) 820-8218
Sharon Machlis, managing editor/online.....(508) 820-8231
Ken Mingis, online news editor.....(508) 820-8545
Marian Prokop, online editor at large.....(508) 620-7717
David Ramel, e-mail newsletter/online editor at large.....(508) 820-8269
John R. Brillon, associate art director.....(508) 820-8216
David Waugh, associate art director.....(508) 820-8142

Peter Smith, Web development manager
Kevin Gerich, **Mark Savery**, Web developers
Bill Rigby, associate Web developer
Matthew Moring, graphics designer

RESEARCH

Mari Keefe, research manager
Gussie Wilson, research associate

COPY DESK

Jamie Eckle, managing editor/production.....(508) 820-8202
Michele Lee DeFilippo, assistant managing editor/production.....(508) 820-8126
Bob Rawson, **Monica Sambataro**, senior copy editors
Eugene Demaitre, **Mike Parent**, copy editors

GRAPHIC DESIGN

Stephanie Faucher, design director.....(508) 820-8235
April O'Connor, associate art director
Julie Quinn, graphic designer
Susan Cahill, graphics coordinator
John Klossner, cartoonist

ADMINISTRATIVE SUPPORT

Linda Gorgone, office manager.....(508) 820-8176
Cheryl Dudek, administrative assistant.....(508) 820-8178

CONTRIBUTING COLUMNISTS

Pimm Fox, **Michael Gartenberg**,
Dan Gillmor, **Paul Glen**, **Thornton A. May**,
David Moschella, **Bart Perkins**,
Nicholas Petreley, **Paul A. Strassmann**

CONTRIBUTING WRITERS

Mary Brandel, **Amy Helen Johnson**, **Russell Kay**,
Sami Lais, **Kathleen Melymuka**

GENERAL INFORMATION

TELEPHONE/FAX

Main phone number... (508) 879-0700
All editors unless otherwise noted below
Main fax number..... (508) 875-8931
24-hour news tip line... (508) 620-7716

E-MAIL

Our Web address is
www.computerworld.com.
Staff members' e-mail follows this form:
firstname_lastname@computerworld.com.
For IDG News Service correspondents:
firstname_lastname@idg.com.

LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to:
letters@computerworld.com.
Include your address and telephone number.

MAIL ADDRESS

PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701

SUBSCRIPTIONS/BACK ISSUES

Subscription rates: U.S., \$99.99/year; Canada, \$130/year; Central and South America, \$250/year; all others, \$295/year

Phone..... (888) 559-7327
E-mail..... cw@omeda.com
Back issues..... (508) 820-8167

REPRINTS/PERMISSIONS

Contact.....Renee Wywadis
Phone.....(717) 399-1900, ext. 172
E-mail.....reprints@computerworld.com
Visit **www.reprintbuyer.com** to obtain quotes and order reprints online.

COMPANIES IN THIS ISSUE

Page number refers to page on which story begins. Company names can also be searched at **www.computerworld.com**.

A4VISION INC.	22	CISCO SYSTEMS INC.	9,11,40
AAA MICHIGAN	8	CITIGROUP INC.	11
AAROH COMMUNICATIONS INC.	11	COGNIZANT TECHNOLOGY	29
ACCLIVITY LLC	6	SOLUTIONS CORP.	29
ADVANCEDDIGITAL	20,21	COLLABNET INC.	29
INFORMATION CORP.	18	COLUMBIA ACCIDENT	5
AETHER SYSTEMS INC.	5	INVESTIGATION BOARD	10
AIM INC.	1	COMDISCO HOLDING CO.	17
ALINEAN LLC	8,17	COMMERCE ONE OPERATIONS INC.	8,8,9
AMAZON COM INC.	4	COMPUTER ASSOCIATES	8
AMERICAN GAS ASSOCIATION	17	INTERNATIONAL INC.	1,8,9
ARIBA INC.	27	CONFIGURESOF INC.	8
AT&T CORP.	8	CONSOLIDATED EDISON COMPANY OF	1
AUSTIN BANK, TEXAS NA	22	NEW YORK INC.	32
AUTONOMY INC.	8	CONSUMERS AGAINST SUPERMARKET	17,18
BAKER HILL CORP.	10	PRIVACY INVASION AND NUMBERING	5
BANK FOR INTERNATIONAL	29	COORS BREWING CO.	32
SETTLEMENTS	11	CORPORATE EXPRESS INC.	17,18
RAY4 CAPITAL PARTNERS LLC	10	DATA TRACE INFORMATION	29
BEST BUY CO.	29	SERVICES LLC	12
BLUE CROSS AND BLUE SHIELD	12,27	DATALODE INC.	9,40
OF MINNESOTA	9	DELL INC.	20,21
BMC SOFTWARE INC.	11	DELOITTE CONSULTING	10
BROCADE COMMUNICATIONS	32	DIGEX INC.	18
SYS FMS INC.	30	DOCUMENTUM INC.	1
BRUNSWICK CORP.	32	EASTMAN CHEMICAL CO.	32
BUSINESS RUEL SOLUTIONS LLC	8	EATON CORP.	8
C2 CONSULTING	5	ECORA SOFTWARE INC.	29
CARNEGIE MELLON UNIVERSITY	10	ELANCE INC.	4
CENTER FOR EMBEDDED	10	ELECTRIC POWER RESEARCH INSTITUTE	27
NETWORK SENSING	10	ELECTRICITY INNOVATION INSTITUTE	11
CENTERLOGIC INC.	20,21	EMCOR GROUP INC.	17
CENZIC INC.		ENTERPRISE STORAGE GROUP INC.	
CERTANCE LLC		ESCOUT LLC	

FBI	4	NATIONAL INSTITUTE OF STANDARDS	10
FERRIS RESEARCH	29	AND TECHNOLOGY	9
FIELDGLASS INC.	1	NCI INFORMATION SYSTEMS INC.	23
FIRSTENERGY CORP.	1,9	NCIPHER PLC	8
FORRESTER RESEARCH INC.	10	NETWORK ASSOCIATES INC.	8
FORTIX INC.	21	NETWORK INSTRUMENTS LLC	8
FREEMAN REPORTS	6	NEW GENERATION COMPUTING INC.	29
FRONTBRIDGE TECHNOLOGIES INC.	1,20	NEW YORK INDEPENDENT	1
GARTNER INC.	12,27	SYSTEM OPERATOR	11
GEISINGER HEALTH SYSTEM	27	NISHAN SYSTEMS INC.	11
GEORGE WASHINGTON UNIVERSITY	6	NETWORK INSTRUMENTS LLC	8
GRIDNODE INC.	8	NORTH AMERICAN ELECTRIC	1
HANDSPRING INC.	18,9,21	RELIABILITY COUNCIL	9
HEWLETT-PACKARD CO.	6	OMNIUM WORLDWIDE INC.	9
HITACHI LTD.	1	ORACLE CORP.	6,17,18,40
HOLIDAY RETIREMENT CORP.	1	ORBITZ LLC	12
IBM	1,4,8,9,21,40	OREGON HEALTH &	22
IDAHO NATIONAL ENGINEERING AND	8	SCIENCE UNIVERSITY	8
ENVIRONMENTAL LABORATORY	1,28	PATCHLINK CORP.	4,6
IDC	1,8,9	PEOPLESOF INC.	6
INTEL CORP.	10	PRIVACY RIGHTS CLEARINGHOUSE	20
INTERVET INC.	9	QUANTUM CORP.	17
IPSWITCH INC.	8,9	QUEST SOFTWARE INC.	10
J.D. EDWARDS & CO.	1,4	REGIONAL ALLIANCES FOR	10
J.R. SIMPLOT CO.	28	INFRASTRUCTURE AND	11
KAVADO INC.	10	NETWORK SECURITY	11
KELLWOOD CO.	29	RHAPSODY NETWORKS INC.	40
KEMA CONSULTING INC.	1	ROBERT HALF TECHNOLOGY	1
KEMA INC.	4	ROYAL CARIBBEAN CRUISES LTD.	10
KORET OF CALIFORNIA INC.	29	SANCTUM INC.	11
LOCKHEED MARTIN CORP.	4	SANERA SYSTEMS INC.	40
M7 CORP.	6	SAP AG	8
MCDATA CORP.	11	SHAVLIK TECHNOLOGIES LLC	6
MCI	10	SIEBEL SYSTEMS INC.	6
MERCURY INSURANCE GROUP	12,27	SILICON GRAPHICS INC.	21
META GROUP INC.	1,32	SONY ELECTRONICS INC.	10
MICROSOFT CORP.	1,8,23,40	SPI DYNAMICS INC.	10
MIT	10	SPIRE SECURITY LLC	8
MOORE WALLACE INC.	32	ST. BERNARD SOFTWARE INC.	11
NATIONAL AERONAUTICS AND	5	STEINBACH CREDIT UNION INC.	20
SPACE ADMINISTRATION	21	STORSEVER INC.	21

SUN MICROSYSTEMS INC.	1,4,6,18,39,40
SWAN ISLAND NETWORKS INC.	10
TEACHERS' RETIREMENT	6
SYSTEM OF LOUISIANA	5
THE ASSOCIATION FOR AUTOMATIC	4
IDENTIFICATION AND DATA CAPTURE	17
TECHNOLOGIES	10
THE BOEING CO.	6
THE KROGER CO.	1
THE NAUTILUS GROUP INC.	10
THE SCO GROUP INC.	10
THE YANKEE GROUP	1
THINK DYNAMICS	8
TIVOLI SOFTWARE	11
TOWERGROUP	18
TRIGO TECHNOLOGIES INC.	10
TRIPWIRE INC.	9
U.S. AIR FORCE	24
U.S. ARMY	1
U.S. DEPARTMENT OF DEFENSE	24
U.S. DEPARTMENT OF ENERGY	1
U.S. DEPARTMENT OF	1,8,10
HOMELAND SECURITY	24
U.S. GENERAL ACCOUNTING OFFICE	9
U.S. NAVY	9
U.S. TRANSPORTATION COMMAND	1
UNITED STATES TENNIS ASSOCIATION	5
UNIVERSITY OF CALIFORNIA,	21
LOS ANGELES	17
UNIVERSITY OF CALIFORNIA, SAN DIEGO	4
UNOCAL CORP.	8
VERIZON COMMUNICATIONS	6,17,18
VOLVO FINANCE NORTH AMERICA	8
WEBMETHODS INC.	8
WILBERT INC.	29
WILDPACKETS INC.	1
WIPRO LTD.	10
WOHL ASSOCIATES	
WORLD.COM INC.	

ADVERTISER'S INDEX

EMC	26
www.emc.com	
F5 Networks	2
www.f5700m.com	
Fujitsu Technology Solutions	16
www.ftsi.fujitsu.com	
IBM Linux	41
www.ibm.com	
IBM Storage	7
www.ibm.com	
IT Executive Summit	33
www.itexecutivesummit.com/bi	
Microsoft Visual Studio	14-15
www.microsoft.com	
Microsoft Windows Server 2003	G1-1
www.microsoft.com	
SAS	42
www.sas.com	
Sharp	24, 25
www.sharpsusa.com	
Storage Networking World	12/13
www.computerworld.com/snw	
Veritas	19
www.veritas.com	

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Continued from page 1

Spending

in 2004 to remain flat with this year's spending level.

On average, IT spending will amount to about 3% of corporate revenue next year, predicted Stamford, Conn.-based Meta. That's down from the boom years of the dot-com era. But Howard Rubin, Meta's executive vice president, noted that IT spending as a percentage of revenue was even lower before the boom helped fatten those figures.

"Companies are finding they can run their operations at a lower level [of spending]," he said. "It's almost like a market correction."

Rubin's assessment maps with the situation at Eastman Chemical Co. in Kingsport, Tenn. CIO Jerry Hale said the chemicals maker plans to

shave its 2004 IT budget by 10% compared with this year's allocations, while continuing to maintain existing support for its business operations.

During 2004, Eastman will focus on maximizing the value of its previous investments in manufacturing-execution and ERP systems, a data warehouse and a corporate Web portal, Hale said.

But the spending cutbacks made by many companies during the past few years could eventually have a whiplash effect on IT departments, said Tom Pisello, president and CEO of Orlando-based Alinean. According to Pisello, corporate business units have resorted to creating "shadow" IT departments to launch pet projects that have

been stalled by IT budget cuts (see "Dealing With Rogue IT," Page 27). Eventually, IT managers could become responsible for maintaining the systems installed by business

units, he said.

Tom Murphy, CIO at Royal Caribbean Cruises Ltd. in Miami, said he expects the company's ongoing IT support costs to rise 5% in 2004, while capital spending should see a spike of 10% to 15%. The increase in capital investments will



CIO TOM MURPHY expects IT capital spending to spike at Royal Caribbean.

be driven by a continuation of the cruise line's efforts to revamp its supply chain, install middleware on ships and at shoreside facilities, and implement new customer-facing systems "to help us be easier to do business with," he said.

As the information systems

director at Holiday Retirement Corp. in Salem, Ore., Steve McDowell is in the enviable position of expecting his IT budget to swell by 25% to 30% next year. That's because the operator of 270 retirement facilities in the U.S. and Canada still has to automate many of its operations, he said.

For example, daily updates on the arrivals and departures of the senior citizens that Holiday Retirement houses are now done manually and sent via overnight delivery to company headquarters. Next year, the company hopes to use its J.D. Edwards & Co. ERP system to automate that process, with IBM's Notes software as a front-end application.

Rubin said some companies will continue to "spend money to save money," such as investing in server consolidation projects to bring down hardware purchasing, leasing and

maintenance costs. But many IT departments that have been cost-focused in the past three years are likely to pad their investments in CRM technology to help grow revenue as consumer confidence begins to pick up steam, he added.

Even so, most companies likely will continue to take a "piecemeal approach" to CRM rollouts and other complex projects instead of laying out money on big-ticket installations, said Stephen Minton, an analyst at Framingham, Mass.-based IDC. ▀

MORE ONLINE

Hiring to remain flat: Most CIOs surveyed by Robert Half Technology don't expect their IT staffing levels to change in Q4.

QuickLink 40966

From the archives: In July, we reported that CIOs were using the economic lull to figure out what investments to make when the economy picks up.

QuickLink 39664
www.computerworld.com

Continued from page 1

Symphony

tight right now" and also questioned whether provisioning technologies that automatically reroute data traffic might affect the system configurations that IT architects have set up to run applications on specific servers.

The provisioning tools being developed by IBM are based on technology that it picked up through a May acquisition of Toronto-based software vendor Think Dynamics [QuickLink 38454]. IBM's planned rollout follows announcements of data center provisioning technologies and services by HP and Sun as part of their respective Utility Data Center and N1 initiatives.

But IBM would be the first major vendor to actually come to market with software that gives users the ability to provision server resources on the fly, said Richard Fichera, an analyst at Forrester Research

Inc. in Cambridge, Mass.

"This is a really important capability for anybody attempting to do virtualized data centers," he said. "If IBM can truly do what they're claiming, this raises the bar for other players."

But it likely will take years for IBM and its rivals to fully flesh out the provisioning functionality, Fichera added. IBM needs to prove that its

tools work, "and then start working through the list of applications that people have trouble managing," he said.

Pricing could also be an obstacle for some users. IBM said Intelligent Orchestrator will start at less than \$20,000, but total costs for wider rollouts of Symphony products and services could reach several million dollars for companies with large, distributed

computing installations.

The Symphony software will support multivendor computing installations and standards such as XML, the Open Grid Services Architecture, Java, the Simple Network Management Protocol and SOAP, said Jocelyn Attal, a vice president at IBM. The tools will be able to gather information about the applications that a company is run-

ning "and develop a workload model based on resource requirements," she added.

In an initial project, IBM itself is using Intelligent Orchestrator to help manage traffic spikes on the servers that are supporting the Web site for the U.S. Open tennis tournament, which is being held in Flushing Meadow, N.Y., through Sept. 7. IBM is managing IT operations at the tournament for the United States Tennis Association.

Amy Wohl, an analyst at Wohl Associates in Narberth, Pa., said that IBM, HP and Sun are all well positioned in the emerging market for data center provisioning tools.

"Customers want to go to an IBM, HP or Sun to help them deal with their messy heterogeneous environments," Wohl said. "They don't want to buy this from 12 different niche vendors." ▀

Robert McMillan of the IDG News Service contributed to this story.

Sun Adds Remote Monitoring Service, With a Pricing Twist

Sun has started offering its top customers a remote network monitoring service under which the vendor captures data about a company's use of computing resources and recommends ways to optimize processing.

Over the next two years, Sun hopes to sign up 70% of the corporate users it does business with directly to use the remote-monitoring capabilities, said Vivek Joshi, vice president of

strategies at the company's Sun Services unit.

Pricing for the service, which is based on a Sun-developed monitoring technology called NetConnect, will be handled on a customer-by-customer basis, Joshi said. Companies with "well-managed" systems will get price discounts that won't be made available to users that don't do such a good job of managing their IT infrastruc-

tures, he added.

"It's the same notion as health insurance," Joshi said. "If you take care of yourself well, you'll benefit financially and operationally." As part of the plan, he said, Sun will use a risk profile it has developed to evaluate IT operations at customer sites and then create a "wellness index" for determining how to price the remote-monitoring service.

-Thomas Hoffman

FRANK HAYES ■ FRANKLY SPEAKING

New Work World

ON THIS LABOR DAY 2003, what's the state of IT work? According to the numbers, it's not quite as bad as it could be — but it's still pretty grim. A report out last week from Robert Half Technology says that only 4% of CIOs plan to cut IT staff by the end of the year (see story, QuickLink 40966). Then again, only 9% plan on adding IT staff. That's not exactly a roaring IT job market.

But dig a little deeper, and you'll find that the big story isn't in the statistics. It's in what companies want from IT people going forward: real business experience to go along with technology expertise.

That's what CIOs are telling U.S. colleges and universities they need from computer science graduates, according to a recent *Computerworld* survey [QuickLink 40537]. Those CIOs say they don't want to hire fresh-faced geniuses who have mastered the latest tech but are clueless about real-world business needs.

And CIOs are putting in more time and effort than ever before to help shape computer science curricula, so they'll have a better chance of getting future IT employees with the business and communications skills they need.

That's the state of IT work today: Purely technical work is out, and being a pure technologist won't cut it in corporate IT shops anymore. From here on in, the relentless focus for IT work is on the business.

But that shouldn't be a surprise. We've been talking about the importance of aligning IT with business needs for a long time. We've been offloading pure technology jobs for even longer — that's why Microsoft, SAP and Oracle build our software, just as IBM, Sun, Dell and Cisco build our hardware. And increasingly, the rest of our pure technology work will be done by outsourcers.

So what work is left for IT people to do? Plenty.

Right now, users struggle with our systems. They struggle because we can't keep up with them. Business conditions change. Business opportunities appear and vanish. Our users react in real time — changing the way they do business to meet those constantly shifting situations.

But our systems don't change to match those changes in our business processes. Forget about real time — we're lucky if we're just

months behind in tracing those changes. Sometimes we're years behind.

Result: Users have to work around those gaps where systems don't match processes. And those work-arounds cost time and money — and sometimes lost business.

And often enough we don't even know there's a problem. Far too many IT people figure their job is done if a system meets the specification or the service-level agreement — never mind whether it matches the real business process. And too many IT people don't have enough contact with users to find out what the real business processes look like anyway.

How do we solve those problems and close those gaps? We need to understand our businesses better. We need to communicate with users. And ironically, we need more and better technology skills — that's the only way we can assemble systems that are flexible enough so we can continuously retool them to match constantly changing business processes.

Yes, that's right: The only way IT people can stay relentlessly focused on the business is by being even better when it comes to technology.

Making all this happen won't be simple. For lots of us, it won't be comfortable. And even if we get it right, it will never be orderly or tidy. Business doesn't work that way. We'll be carving order out of continuous change. We'll be wrestling technology into place one day to support business processes that may change the next.

But that really is what's needed. So forget the statistics, and start bearing down on that business problem. Because when it comes to the state of IT work, we've got our work cut out for us. ▀



FRANK HAYES, *Computerworld's* senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Recovery Disaster

The big blackout hits, but power from UPSs lets this pilot fish shut things down properly in the server room. Next day, electric service is restored — but now fish is locked out of the server room. "The computer room door has a key-card lock, and the PC controlling it did not reboot properly and won't open the door," fish groans. "Several hours later, a key is located. Our disaster plans now include the key to the server room."

That's Why
Everything is
ready to roll out
this company's
new digital video

**SHARK
TANK**

there from the
warehouse."

**Priorities,
Priorities**

system — IT is just waiting for the VP who's ordering the dozen PC-controlled videotape recorders. "I got a great deal!" VP brags when they arrive. "These were half the price of the model you guys suggested. I don't know what you were thinking!" But fish knows. "When it came time to plug them in," he says, "we discovered they didn't have the necessary connectors to plug into the PCs!"

When this executive's PC stops working, support pilot fish patiently explains that the exec really shouldn't have deleted dozens of critical Windows system files. But a week later, it happens again. And when fish asks why, exec explains, "Oh, I needed to make room for some big spreadsheets, and my files are *much* more important than those. Why doesn't the computer still work?"

Optimized for Ego

This hospital needs office space, so programmers are bumped to an office building. It takes a few years, but eventually a VP visits and notices that IT has nicer digs than he does. So IT moves again — this time to an old warehouse with chain-link cubicles that formerly held supplies and old equipment. "It felt like going to work in a jail," says pilot fish. But some documentation is discovered missing, so one programmer goes back to the old office looking for it. What does he find in the nice old space? Says fish, "All the junk that was moved

It's All in the Specifications

This executive hasn't used her PC at all in the past two years, and now she says she wants a laptop to take work home. Finance pilot fish is trying to help her specify what she needs so he can order the right machine. But exec turns down every model fish proposes. Finally, she suggests "the purple one." The purple one? fish asks. "She had received a Dell ad showing a laptop with colored pads for the front corners," sighs fish. "The purchase order read: 'Dell laptop, purple.' It was approved instantly."

FEED THE SHARK! Send your true tale of IT life to sharky@computerworld.com. You snag a snazzy Shark shirt if we use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky.



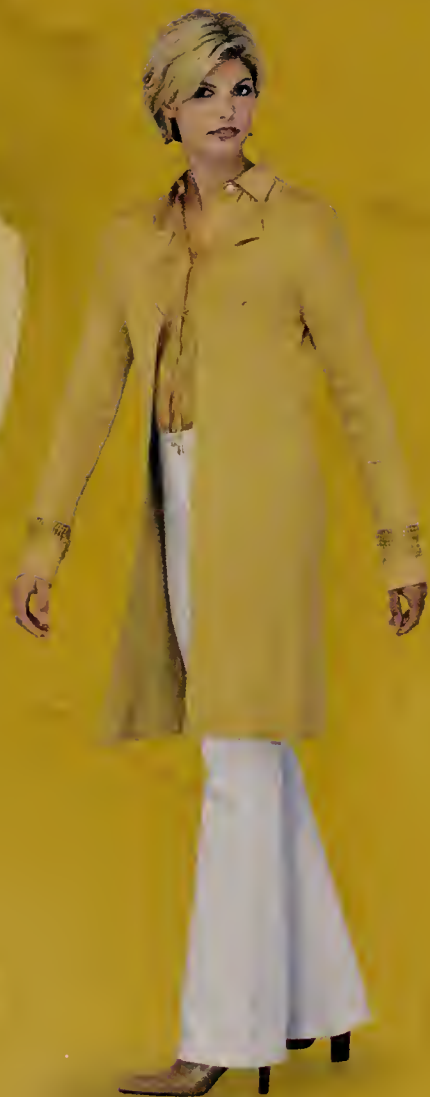
Linux is in the on demand world. Can you see it?

We can. That's why IBM has devoted a tremendous amount of resources to Linux.[®] We have over 7,000 IBMers working on Linux-related projects. Thousands of Linux customer engagements. And more Linux-enabled software than anyone. To learn more about IBM, Linux and **e-business on demand** visit ibm.com/linux/seeit

IBM[®]

IBM, the e-business logo and e-business on demand are trademarks or registered trademarks of International Business Machines Corp. in the United States and/or other countries. Linux is a registered trademark of Linus Torvalds in the United States and/or other countries. © 2003 IBM Corporation. All rights reserved.

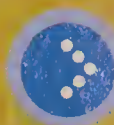
Deliver tailored, mission-critical business intelligence.



With decision authority distributed across business units, how can you quickly provide each one with precise and reliable intelligence? And ensure that all decisions are aligned with strategic goals? SAS® software brings you an integrated architecture—complete with targeted interfaces—that allows different users to tailor information access, analysis and reporting to fit their skills and requirements. This centralized approach lets you share cleansed and relevant data from throughout your enterprise, while retaining control over data consistency and quality. Put 27 years of SAS technology leadership to work for you. Call toll free **1 866 270 5728**. Or visit our Web site for a free white paper and interactive tour.

www.sas.com/bi

The Power to Know®



COMPUTERWORLD
IT Executive Summit

See us at Computerworld's IT Executive Summit on Business Intelligence

september 23 in new york september 25 in san francisco

www.itexecutivesummit.com/bi